

What We Lost When We Stopped Doing UML

Mike Ritchie, BCS Edinburgh, Oct 1st 2025



This event was made possible by
Skyscanner's generous support



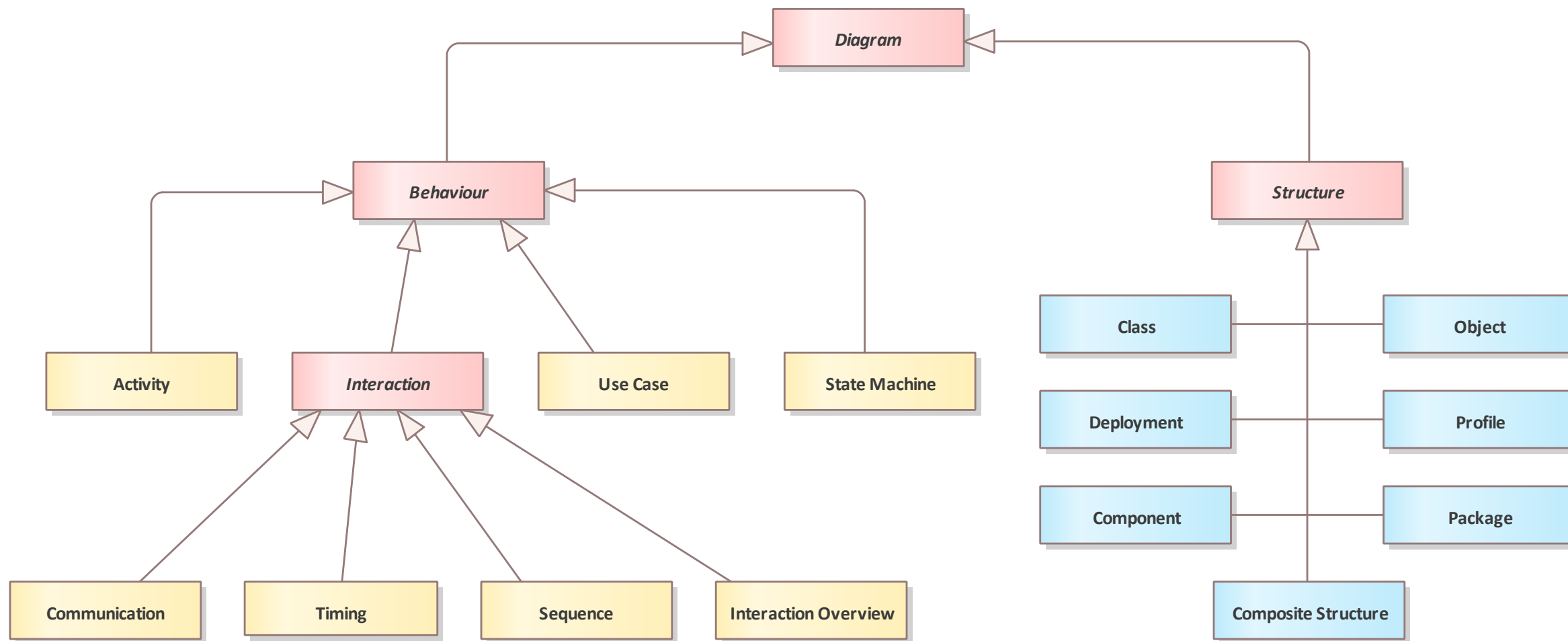
Your time-travel agenda for this talk

- Present day – a UML refresher
- UML precedents, emergence and growth
- Adoption pains and challenges
- Alternatives and decline
- What we lost

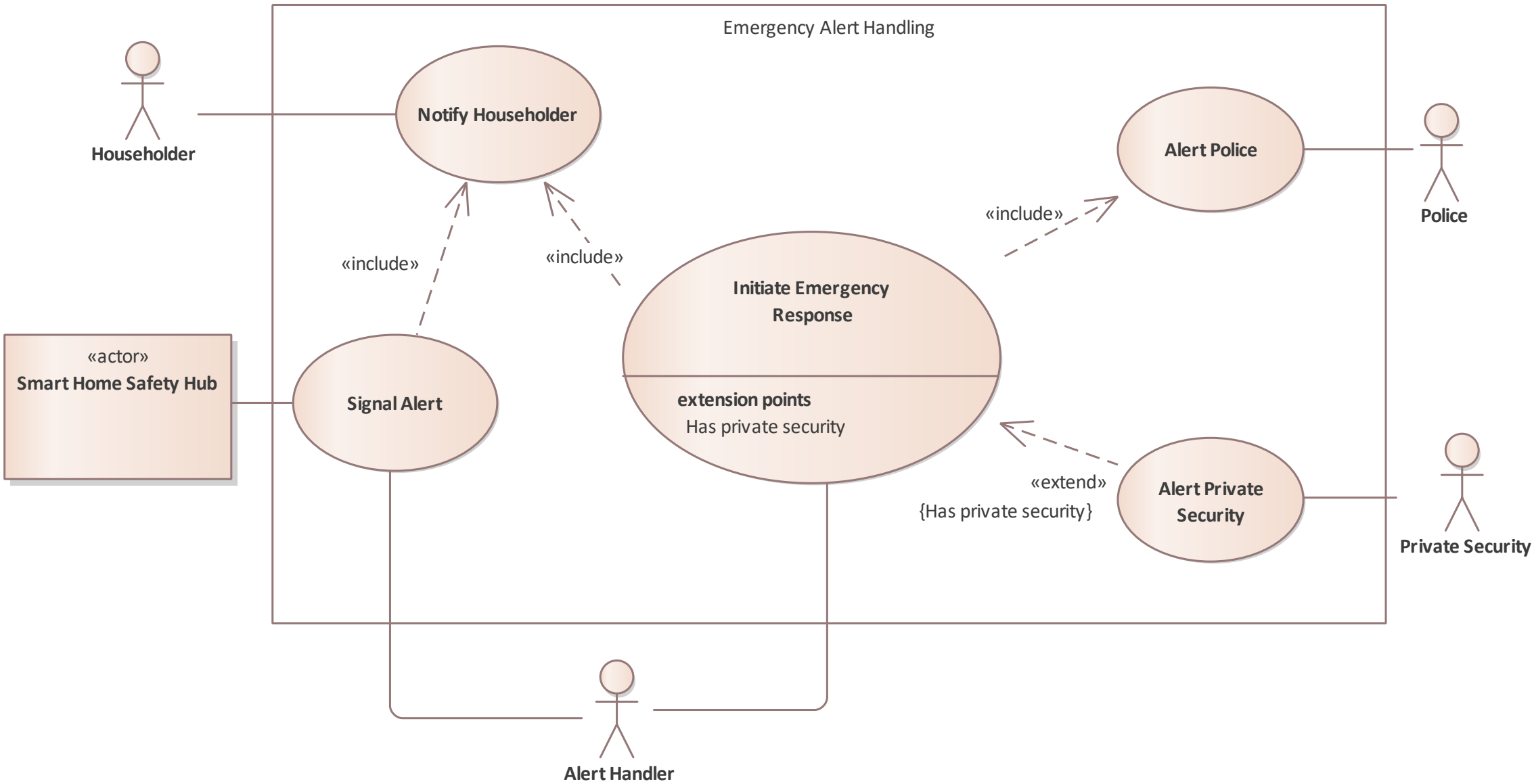
UML is an extensible **visual language** that is used to create **models** of software systems.

UML can show different perspectives of a system's design, including dynamic views of system **behaviour**, as well as static views of the system's **structure** and composition.

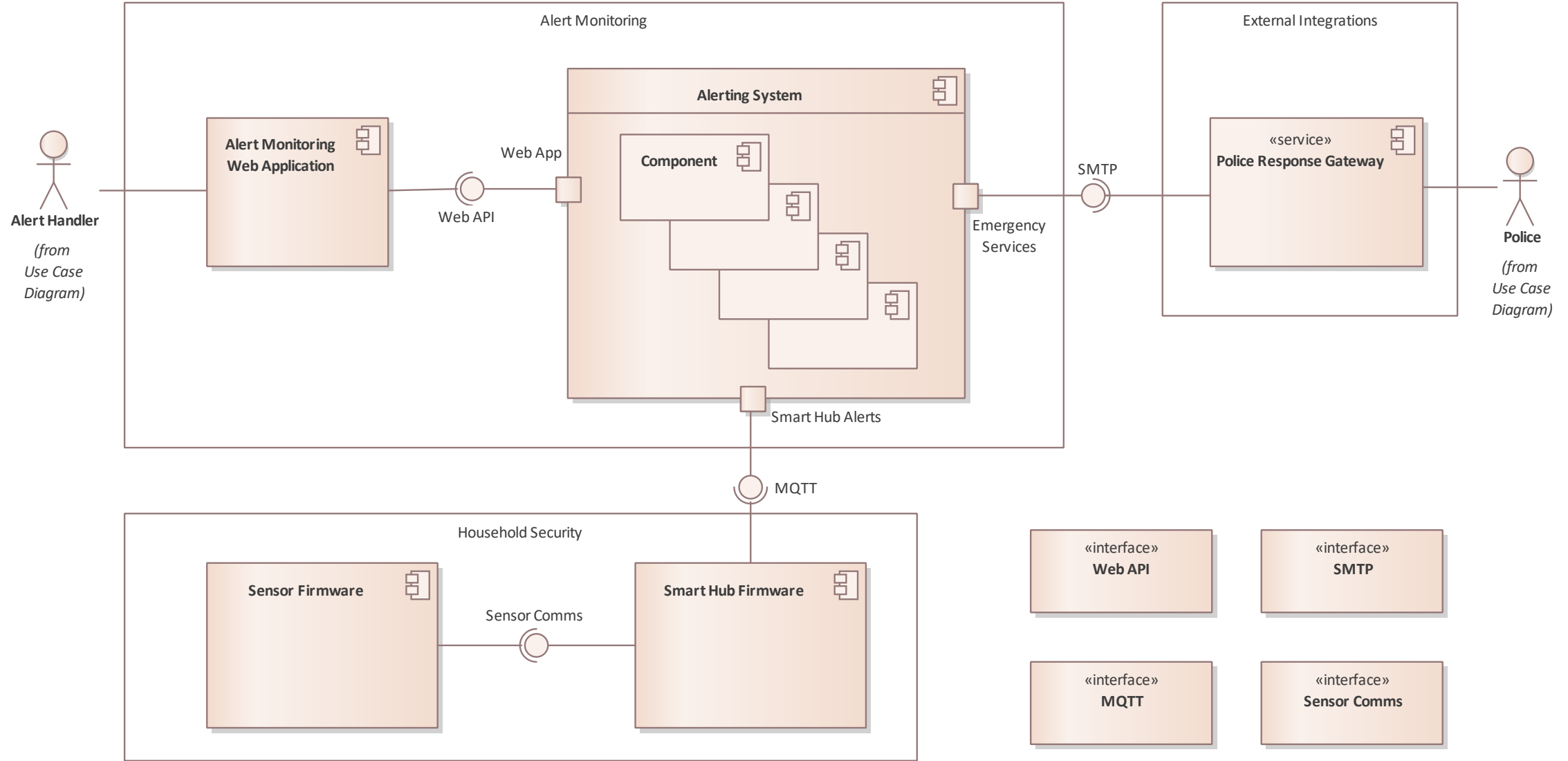
class Fourteen Diagram Types



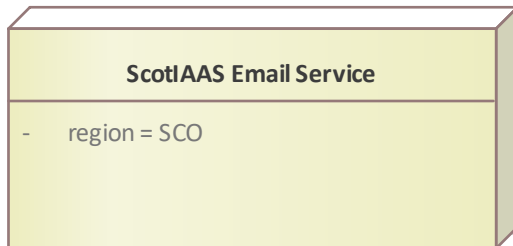
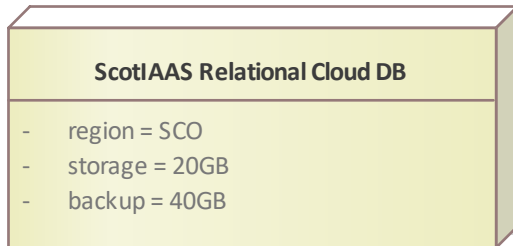
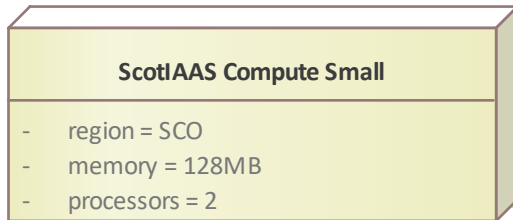
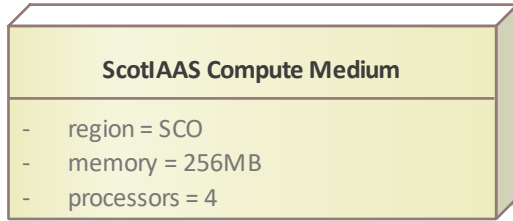
uc Alert Handling



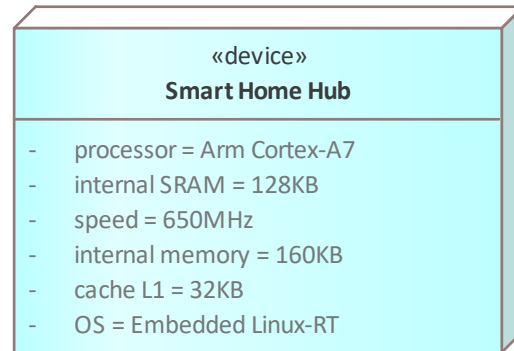
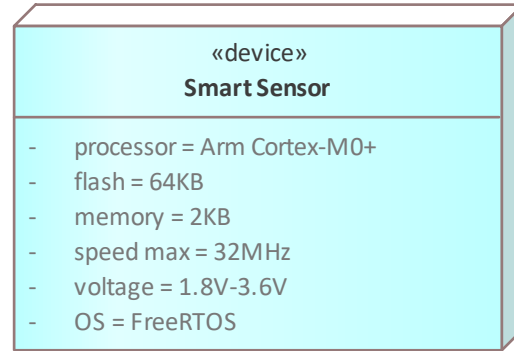
cmp Component Model



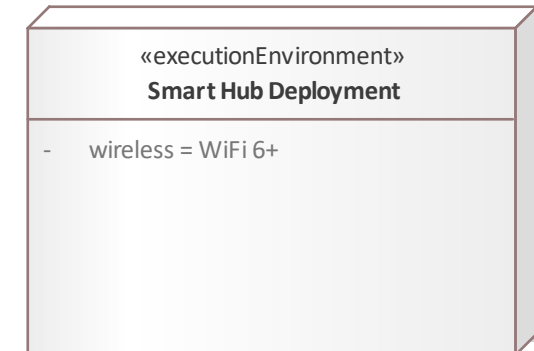
ScotIAAS Cloud Platform Devices



Smart Hub Devices

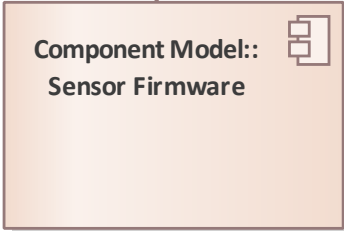
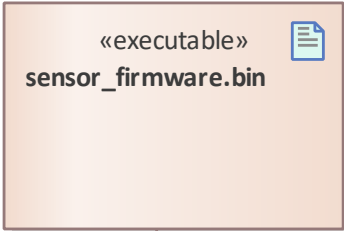
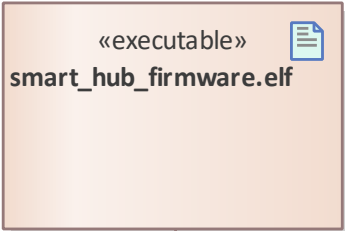
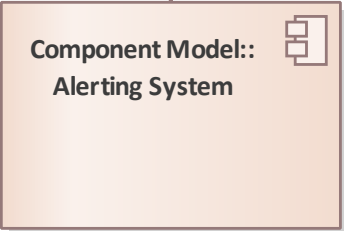
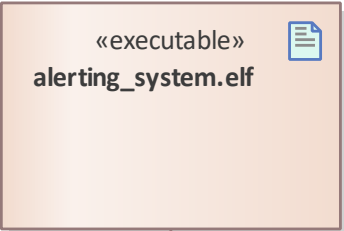
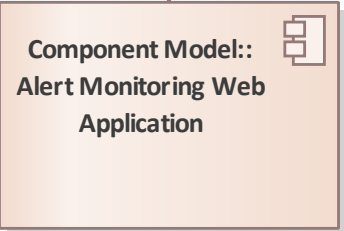


Execution Environments

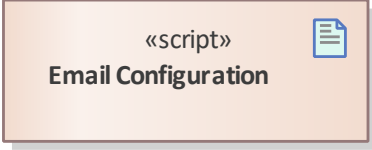
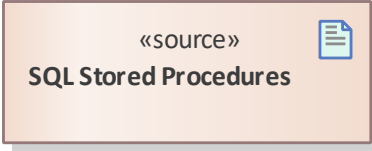
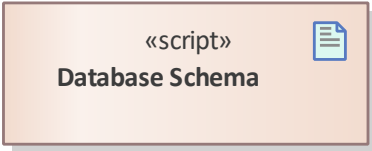


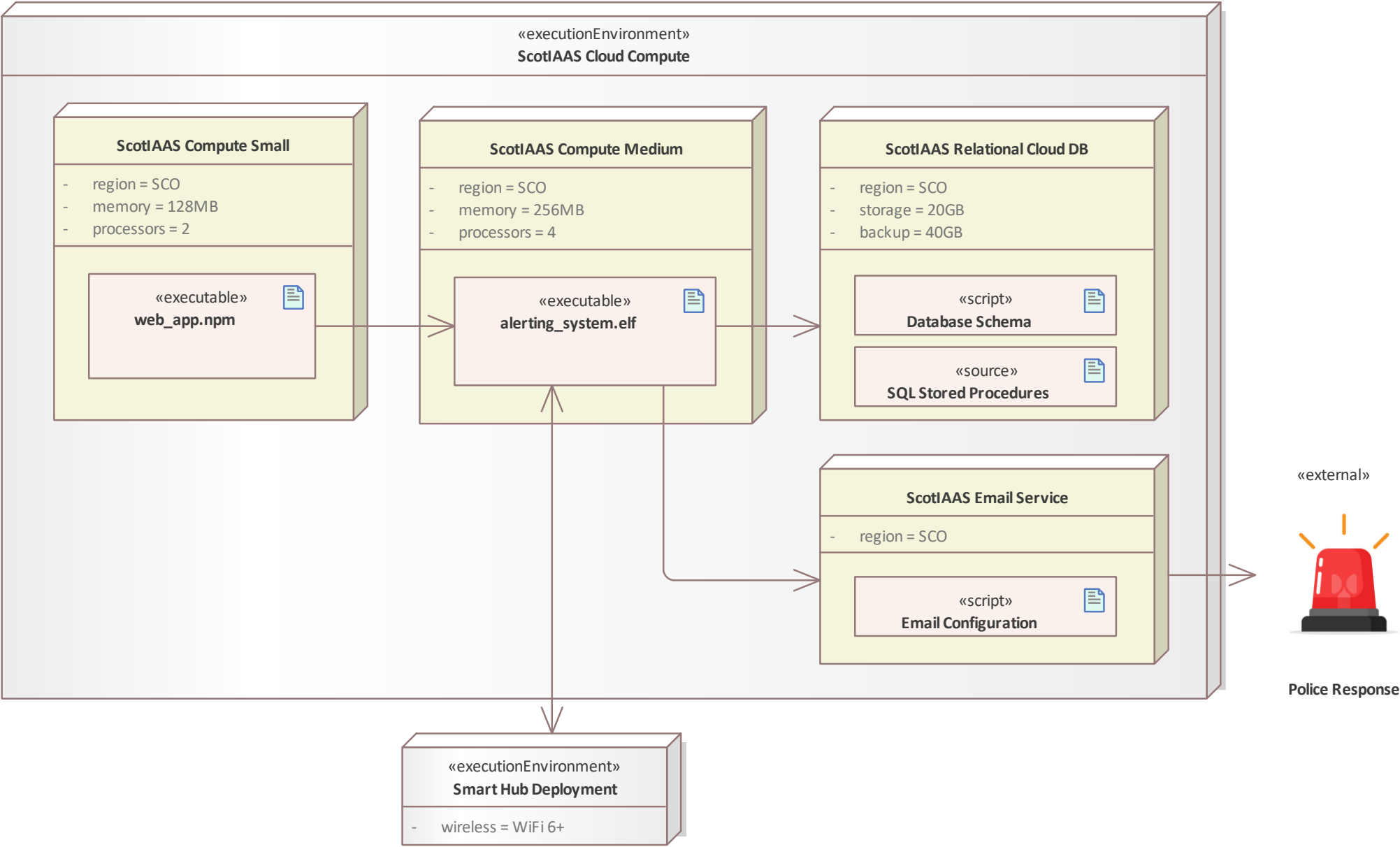
deployment Deployment Artifacts

Components requiring compilation or packaging

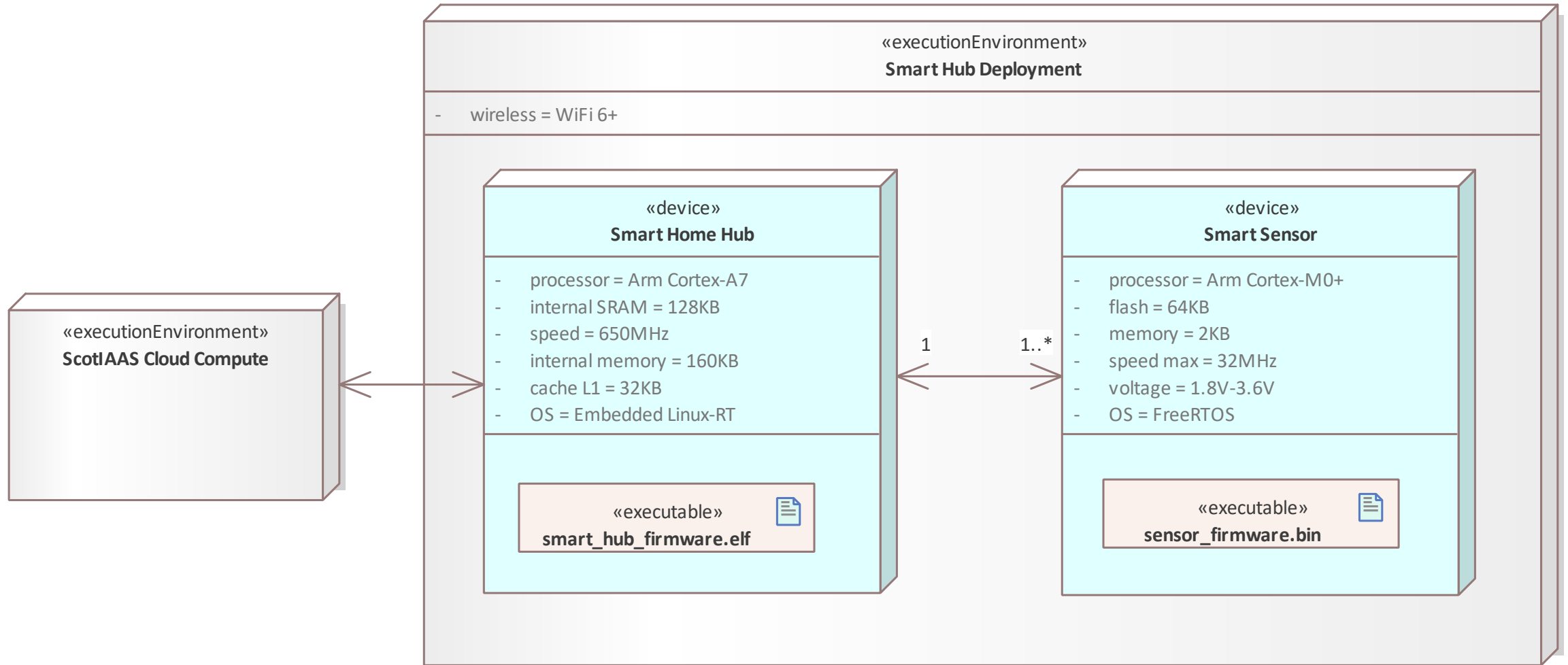


Deployed As-Is





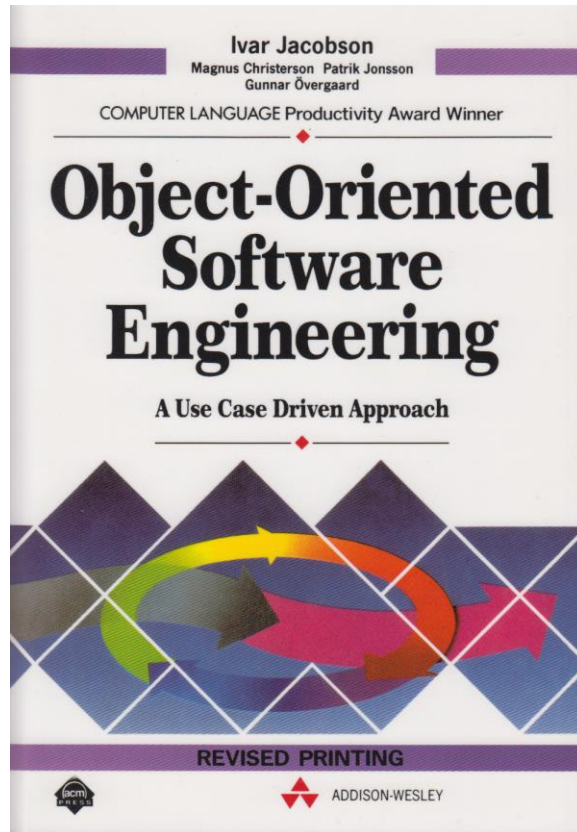
deployment Hub Deployment



Proto-UML: The Three Amigos

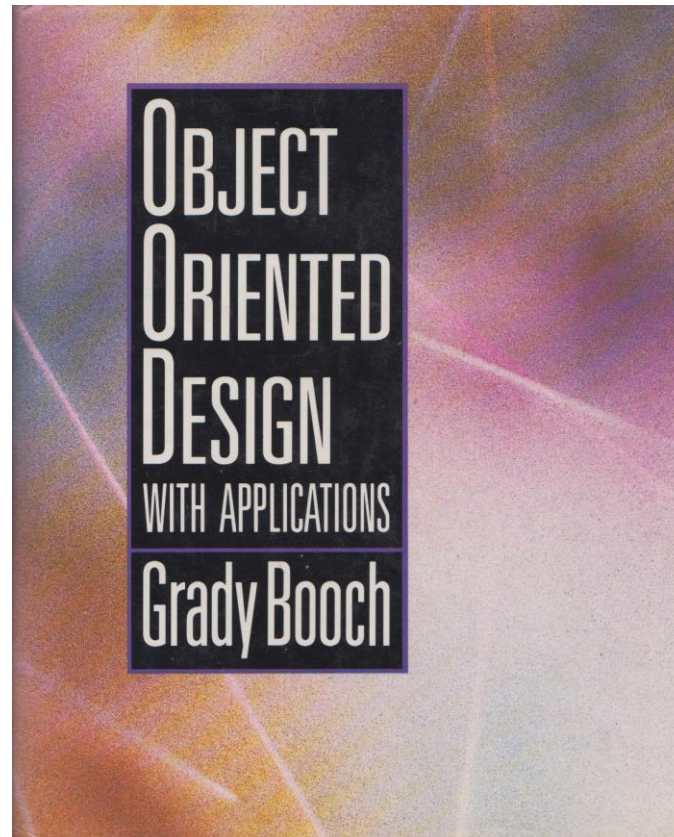
1992 “OOSE”

Ivar Jacobson et al



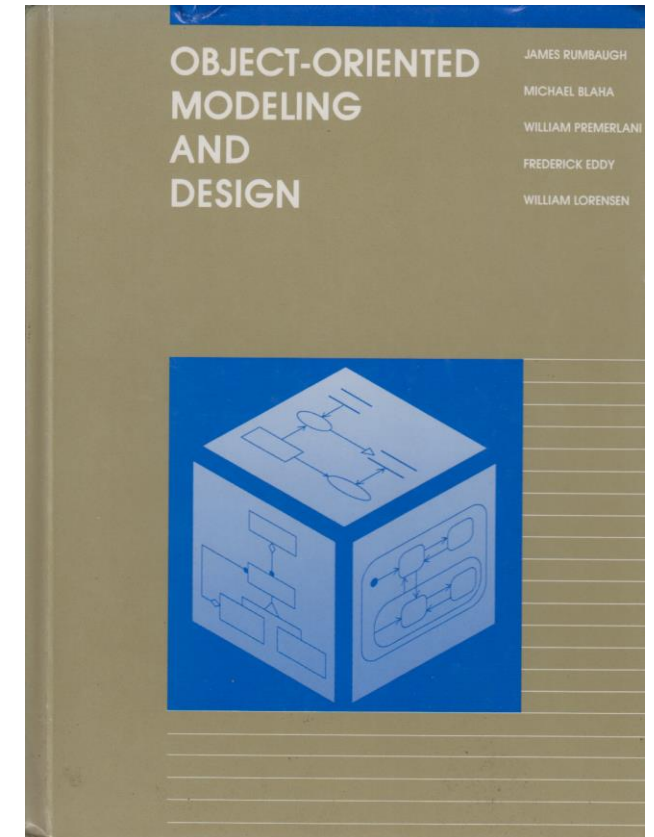
1991 “Booch Method”

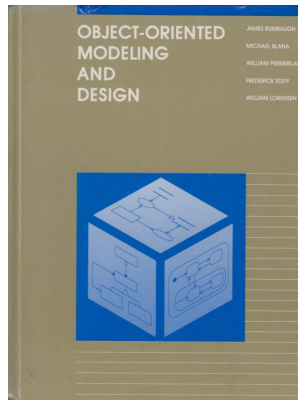
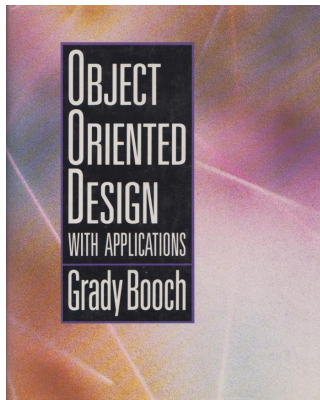
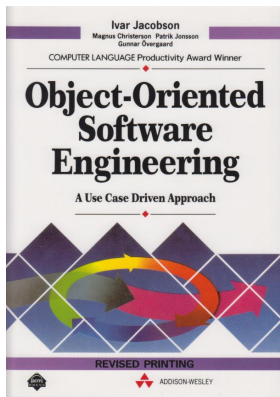
Grady Booch



1991 “OMT”

James Rumbaugh et al





Oracle
Mentor Graphics
Lockheed Martin
Hewlett-Packard
Motorola

Fujitsu
Unisys
NASA
IBM
IONA Technologies

..and dozens more.

Core Spec

Reality

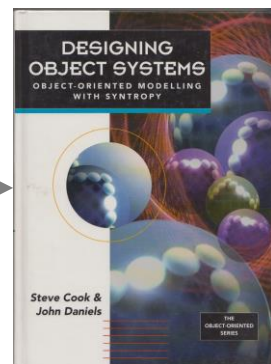
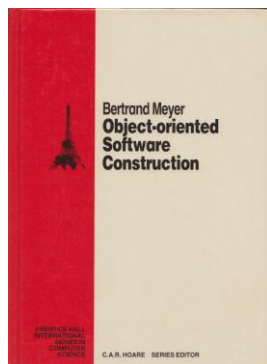
«Stereotypes»

OCL

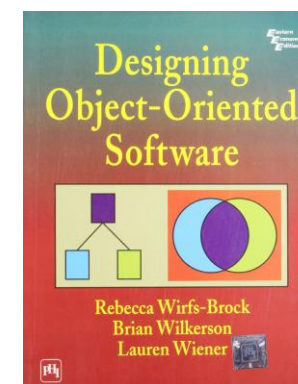
State Charts

Bertrand Meyer

Steve Cook



Professor David Harel



Rebecca Wirfs-Brock

Specification growth

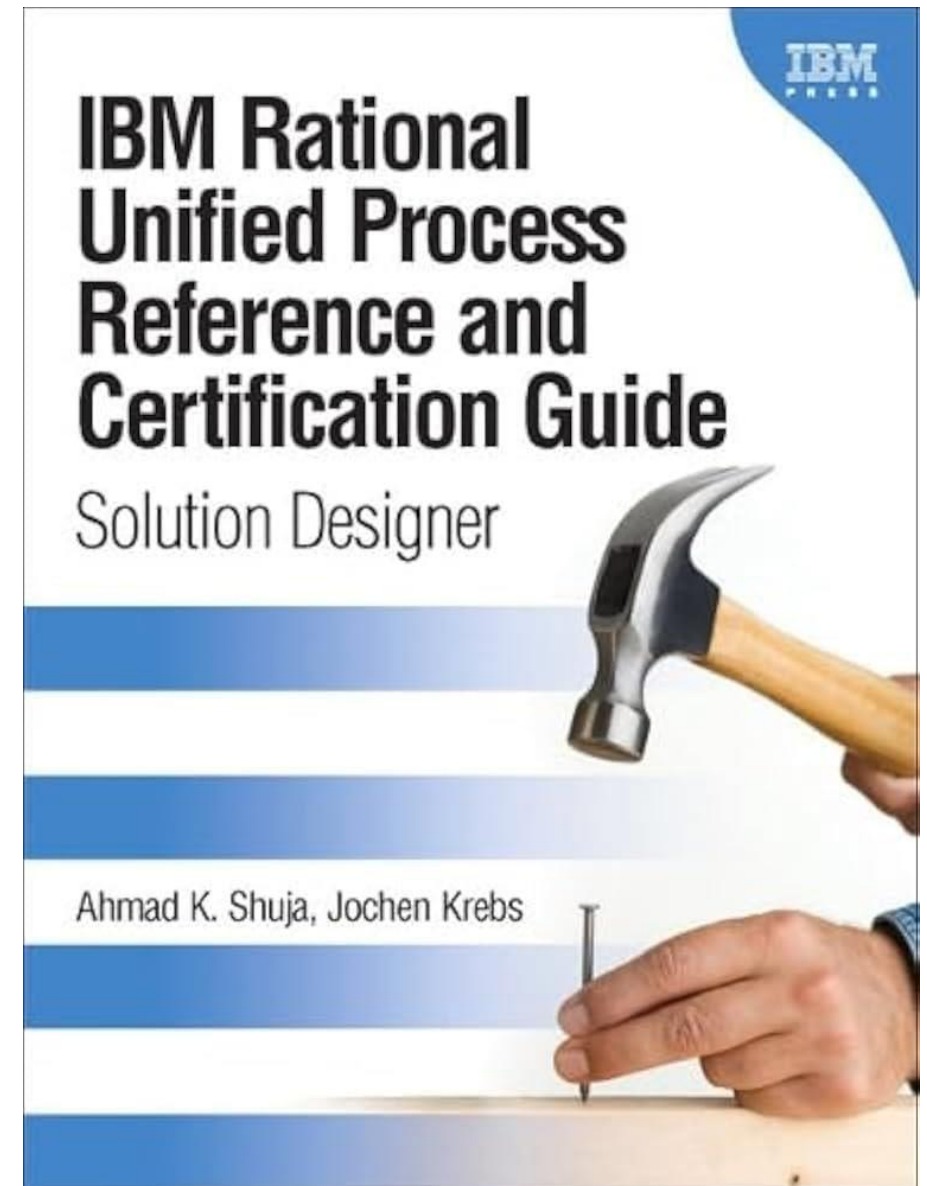
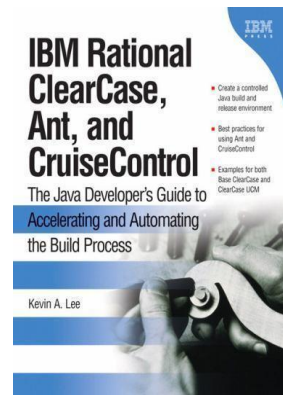
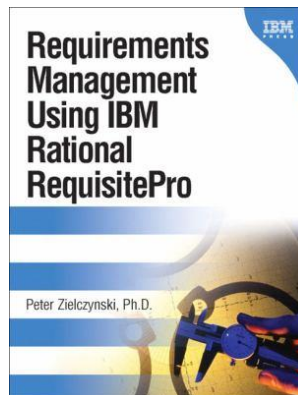
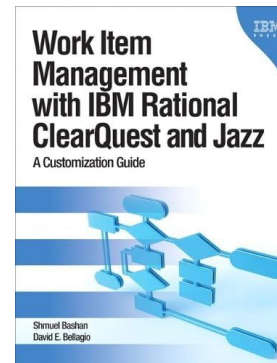
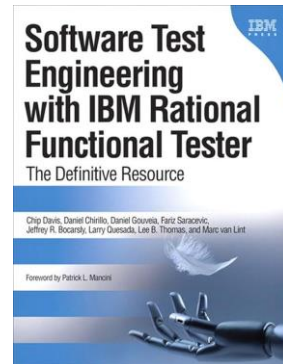
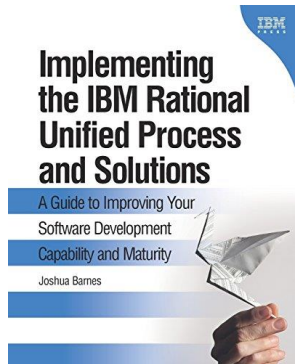
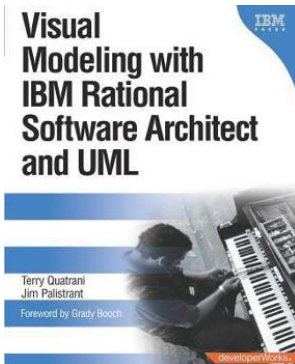
Diagrams in UML 1.3 (2000)

- Use Case
- Class
- Statechart
- Activity
- Sequence
- Collaboration
- Component
- Deployment

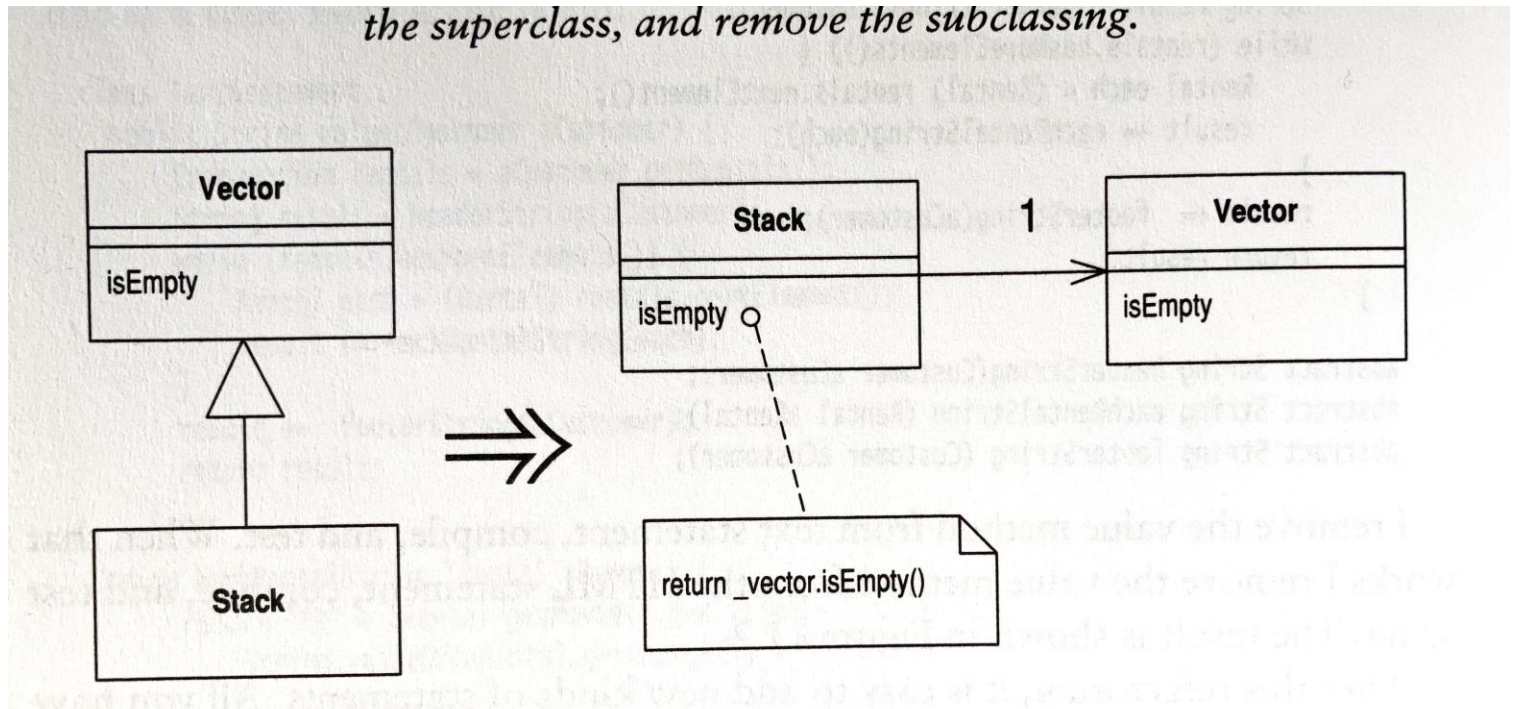
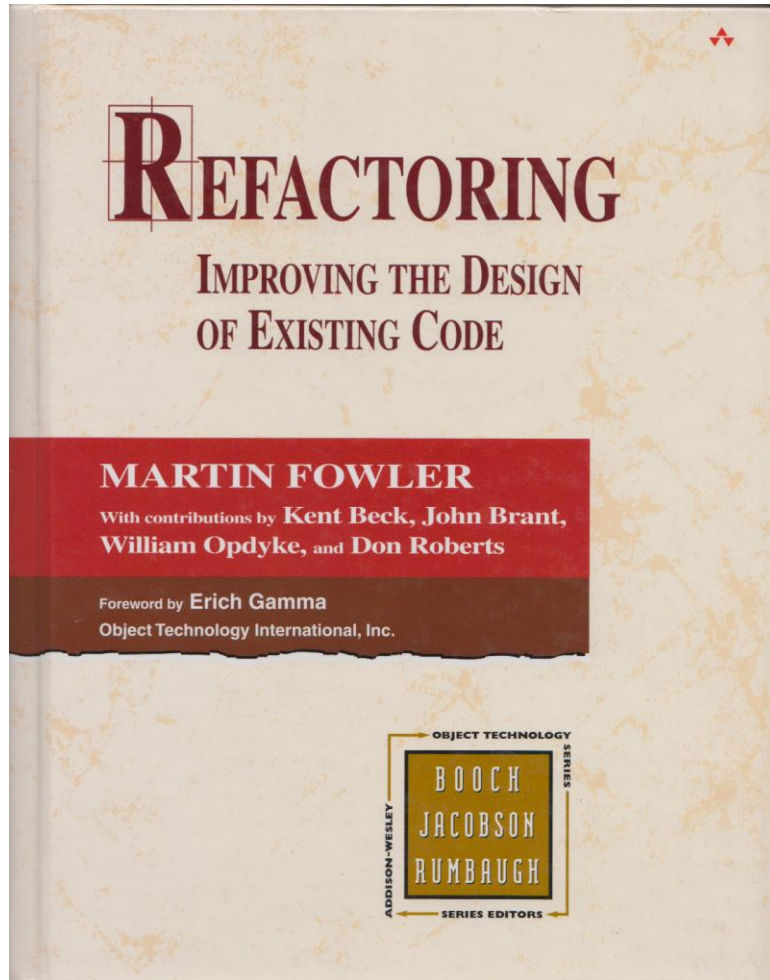
Diagrams added up to 2.5.1 (2017)

- Profile
- Composite Structure
- Package
- Timing
- Interaction Overview
- Object

UML & RUP, IBM-ified



Ubiquitous UML



Motivation

Inheritance is a wonderful thing, but sometimes it isn't what you want. Often you inherit from a class but then find that many of the superclass oper-

Ubiquitous UML

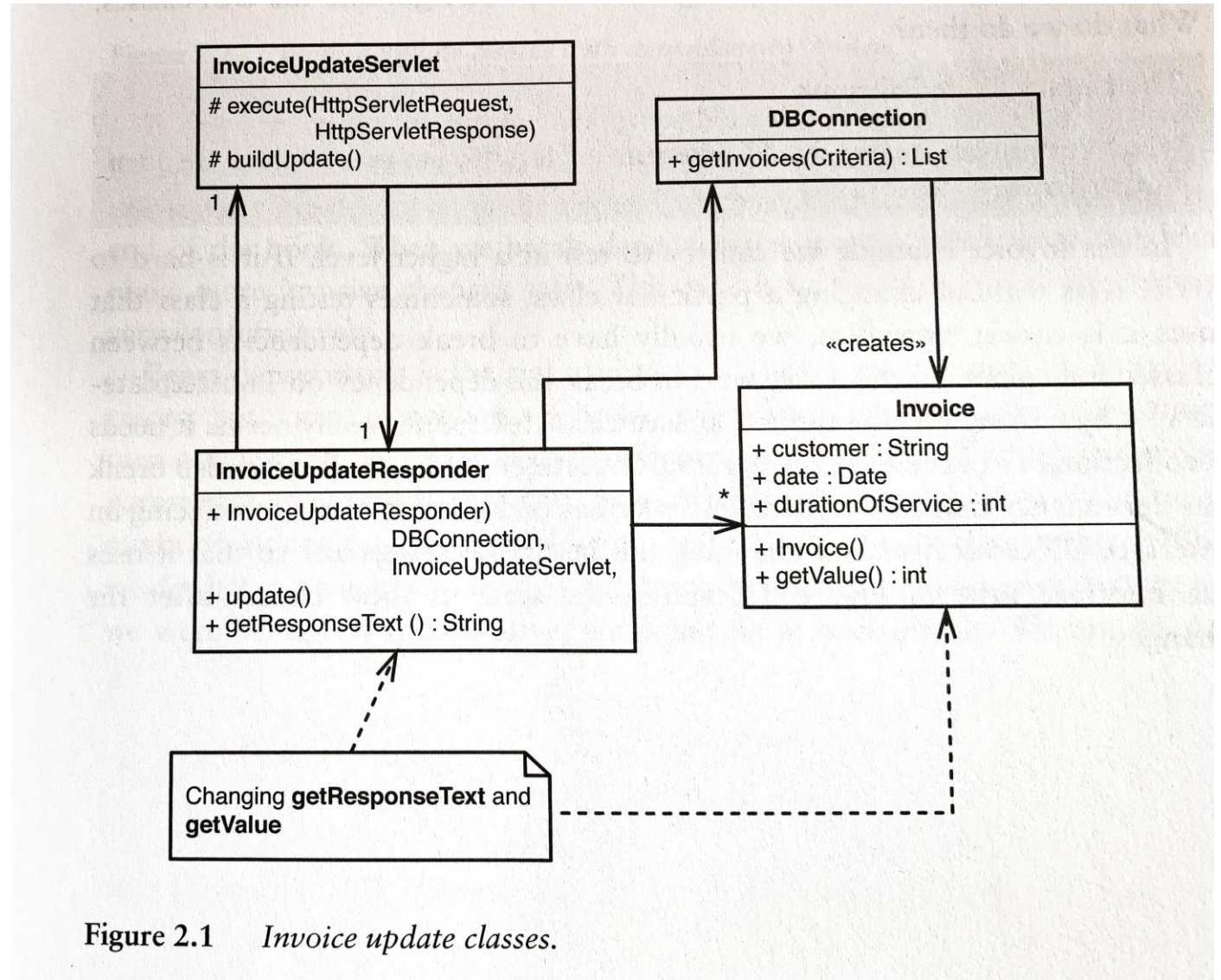
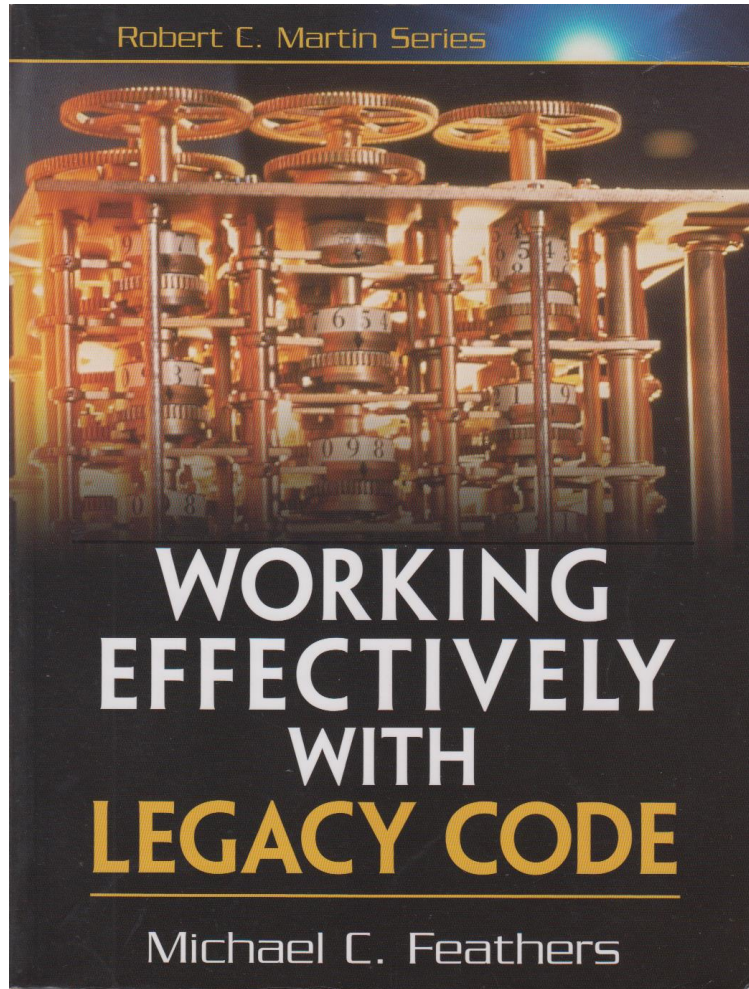
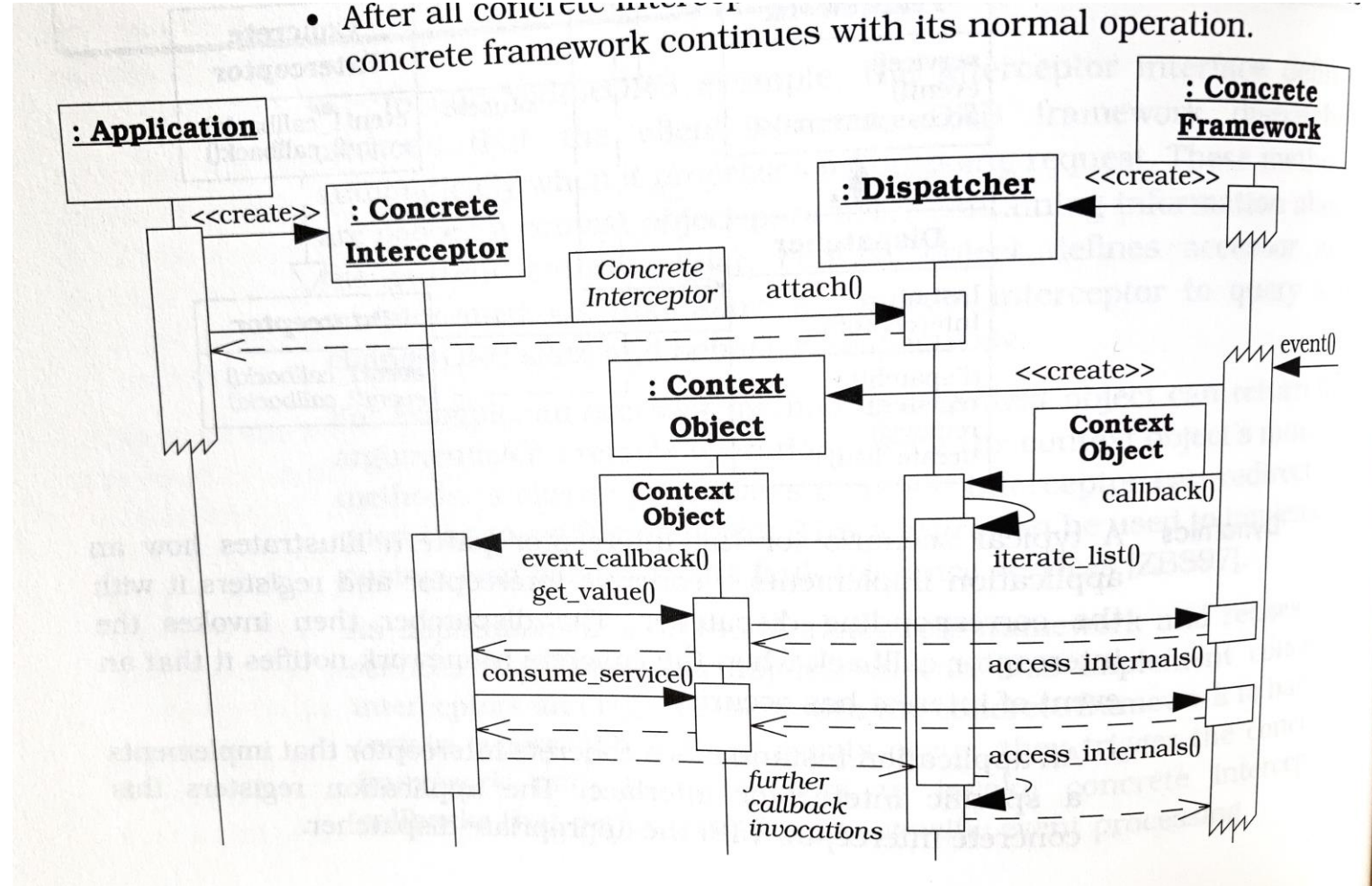
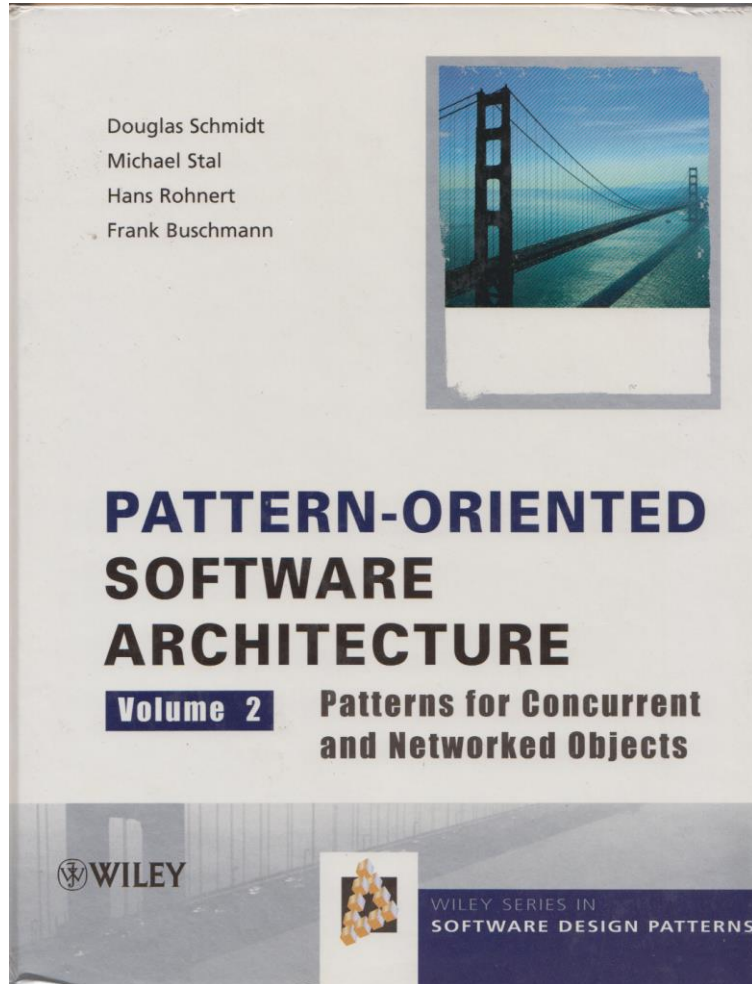
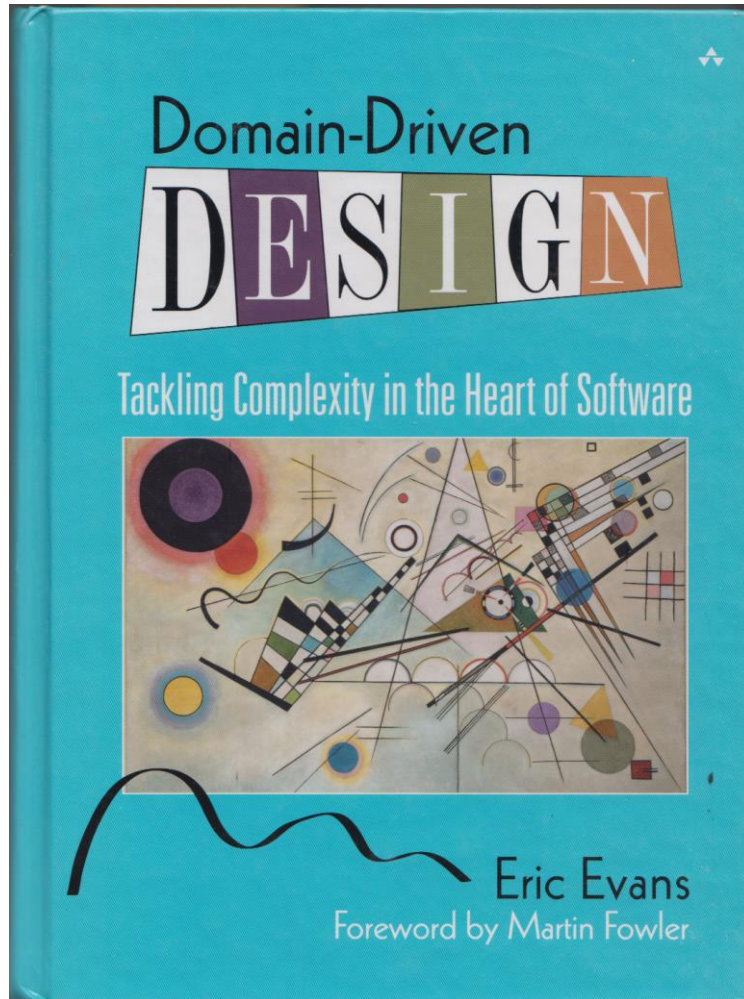


Figure 2.1 *Invoice update classes.*

Ubiquitous UML



Ubiquitous UML



of a REPOSITORY implementation.

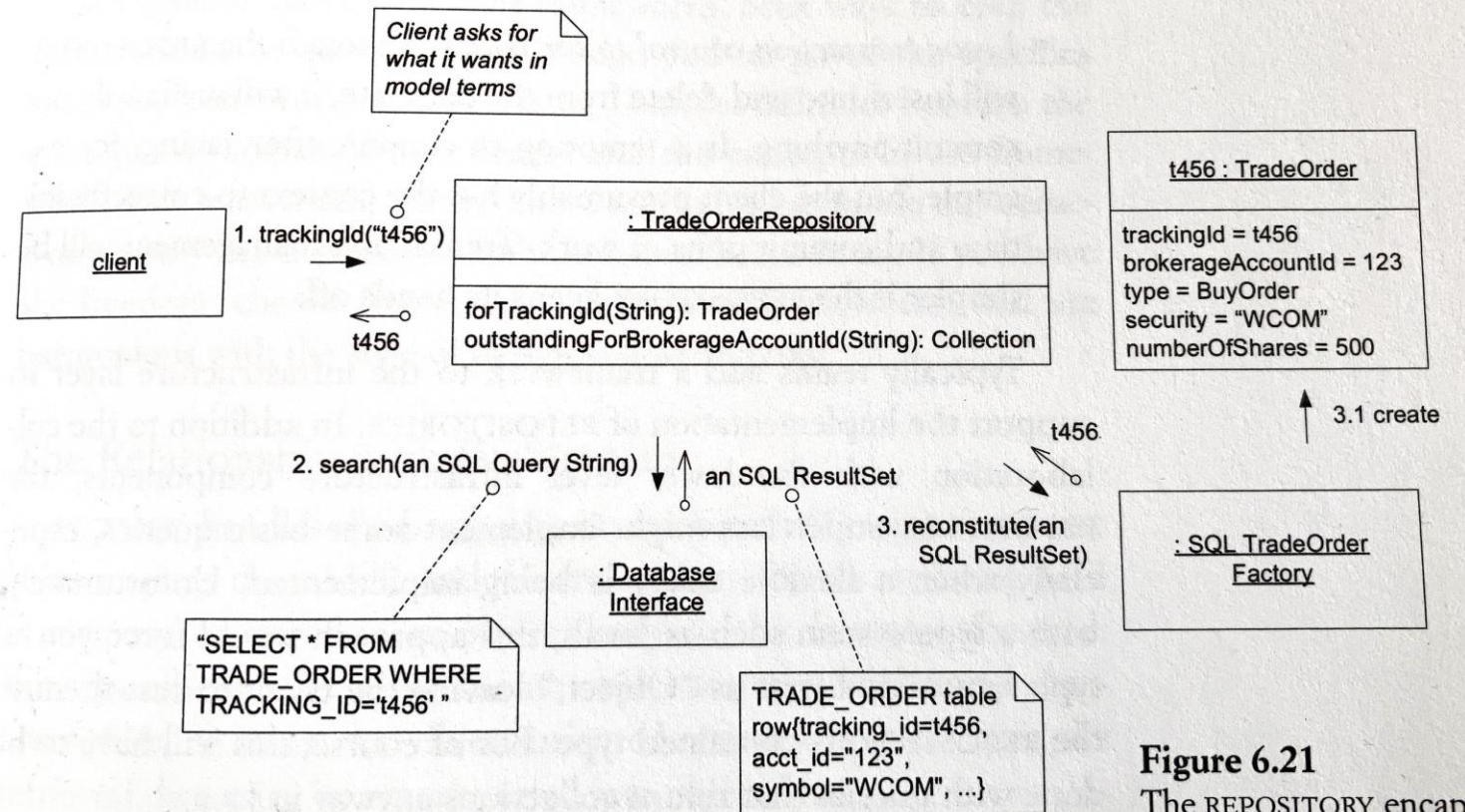
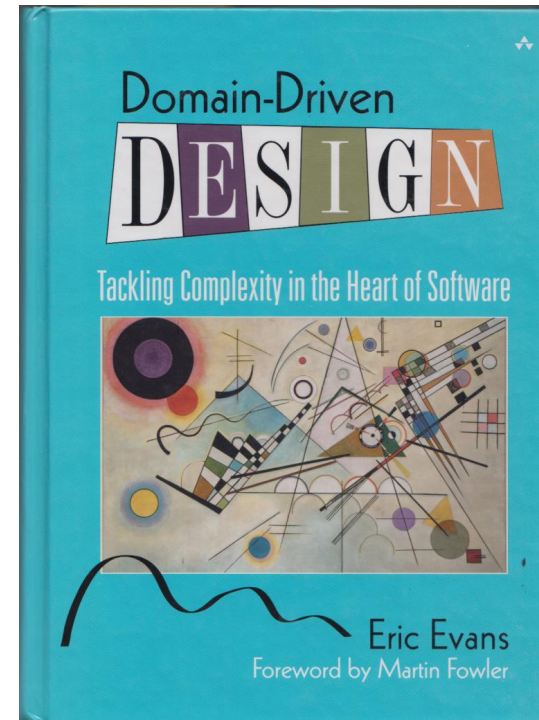
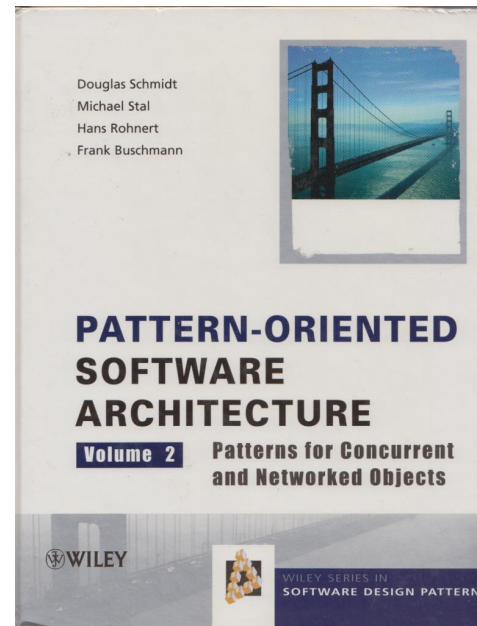
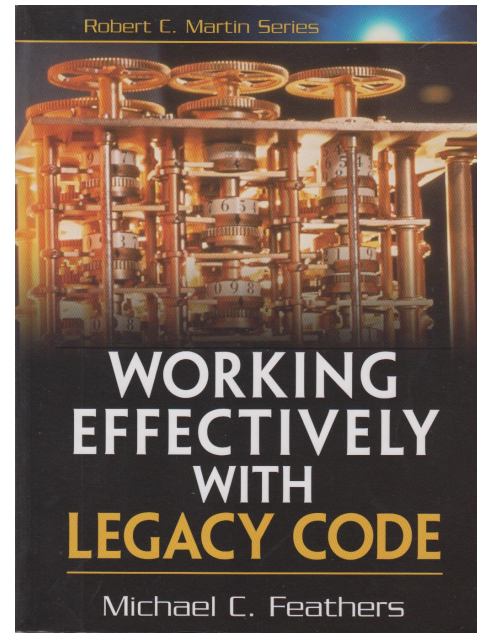
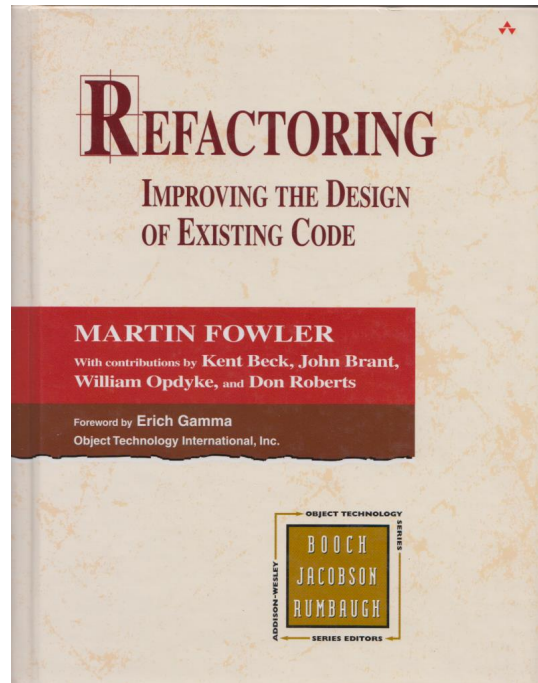


Figure 6.21
The REPOSITORY encapsulates the underlying data store.

The REPOSITORY concept is adaptable to many situations. The





Upskill underkill

Training and coaching to support the adoption of model-based approaches was typically poor or non-existent.

Analysts, system designers and architects had to learn how to use a new visual modelling language, often on top of complex and unfamiliar modelling tool.

Unsurprisingly, the results of a first foray into UML were often disappointing.



So very SAD

“Software Architecture Document” aka “SAD”

Many organisations adopted UML but didn’t put models in the driving seat.

Instead, modelling tools were used for creating diagrams, to then be pasted into architecture documents.

Trying to make systems modelling fit into a document-based process is worse than no modelling at all.



Model mismanagement

At scale, models need curation, oversight and review. They never got it, at least in the experience of this speaker.

A common problem was duplicate definitions by multiple engineers. These meant duplicating effort and guaranteed design inconsistencies.

Curator and model librarian roles were needed, but most organisations either ignored this or were unaware of the need.



A tool of woe

The early days of UML adoption required acquisition of new modelling skills, using tools that were flaky, incomprehensible, or both.

Stability in current modelling tools is far better, but user interfaces remain *challenging*.

Most people use a subset of the language and manage to build enough tool familiarity to be productive.

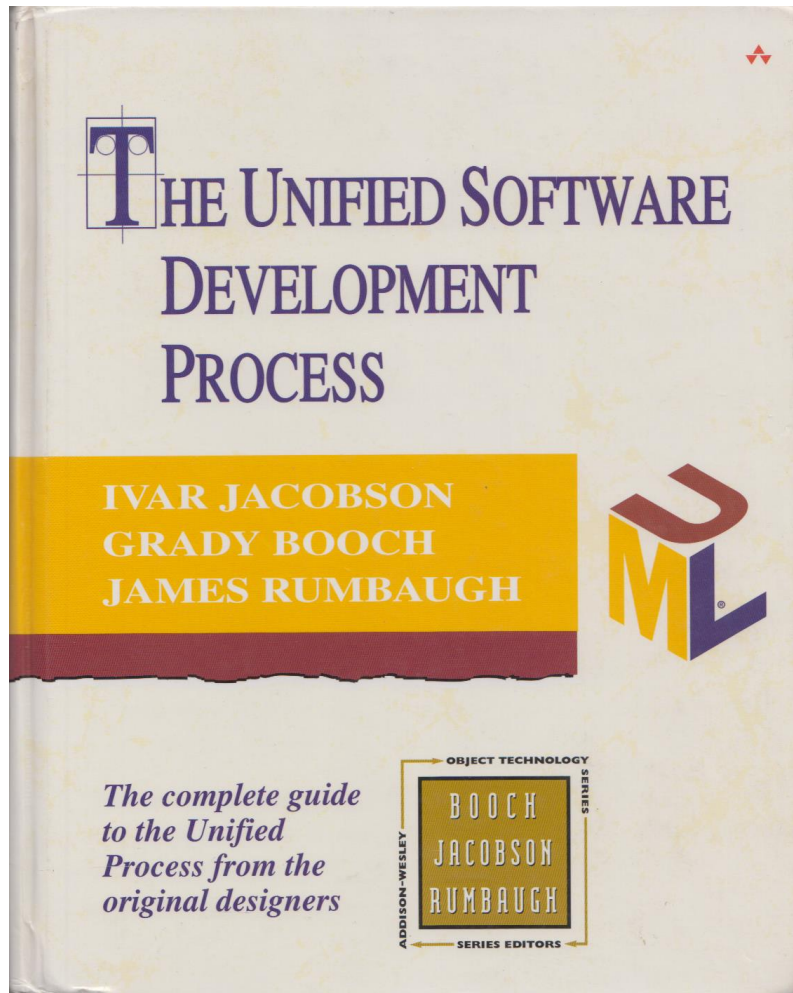


Wrong problem, wrong people

I have a bonus one, but I can't even figure out how to explain it in a wee text box.

I'll just tell you instead.

Nemesis: Enter The RUP



Iterative Development

Business value is delivered incrementally in time-boxed cross-discipline iterations.

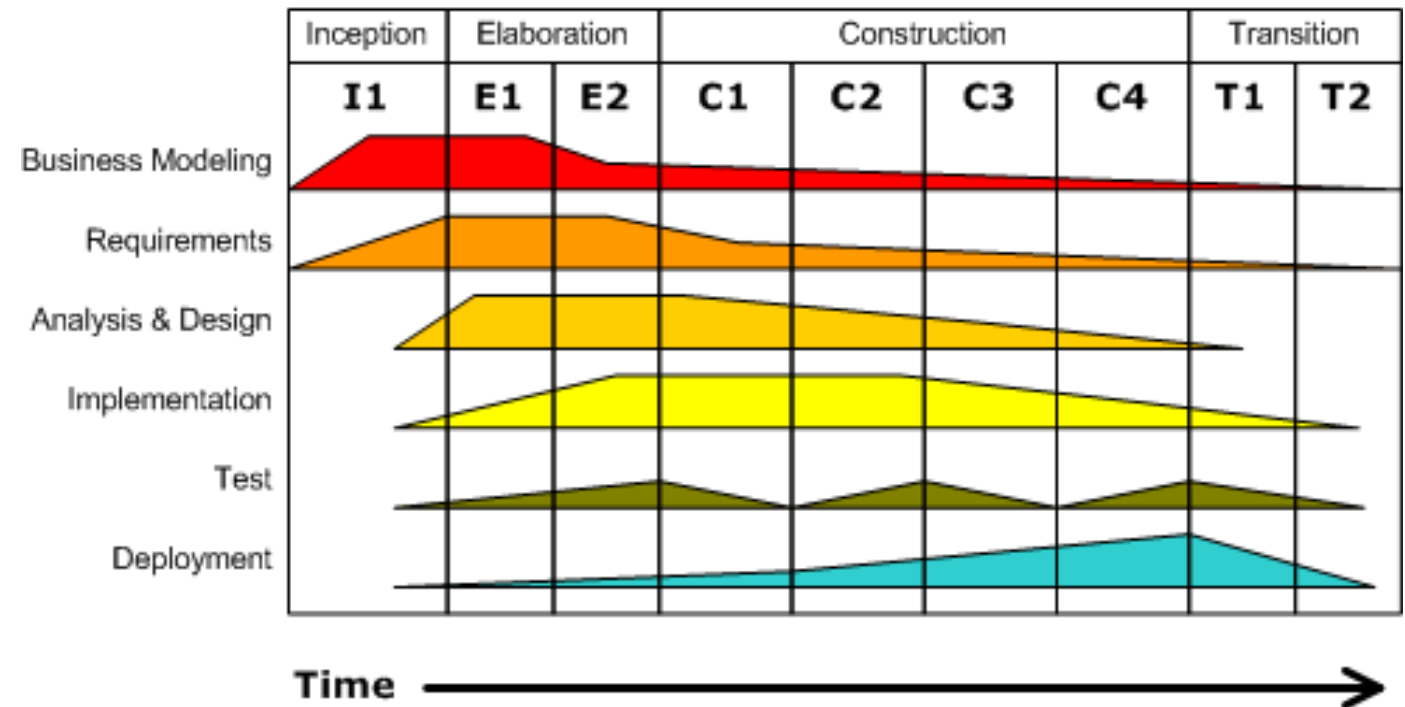
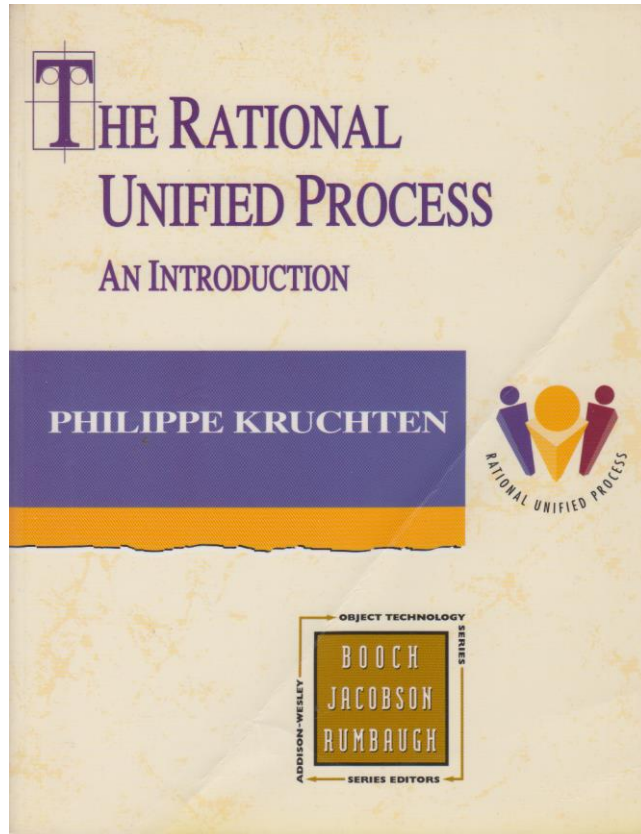
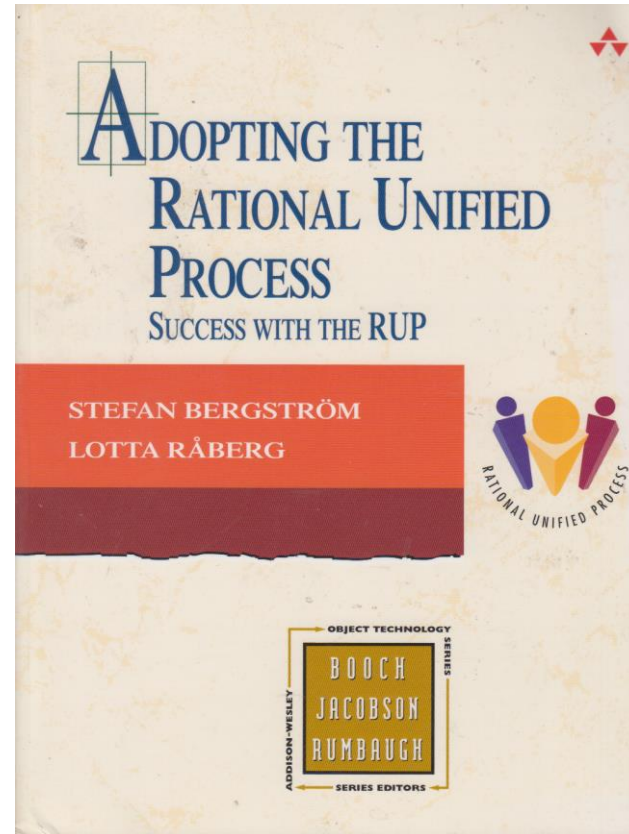
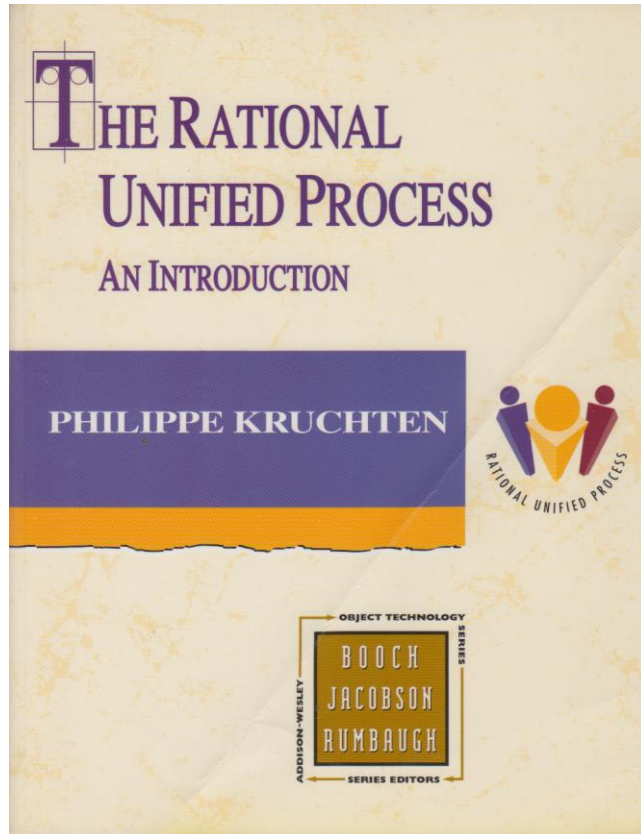


Image credit: Dutchguilder, Wikipedia, public domain.

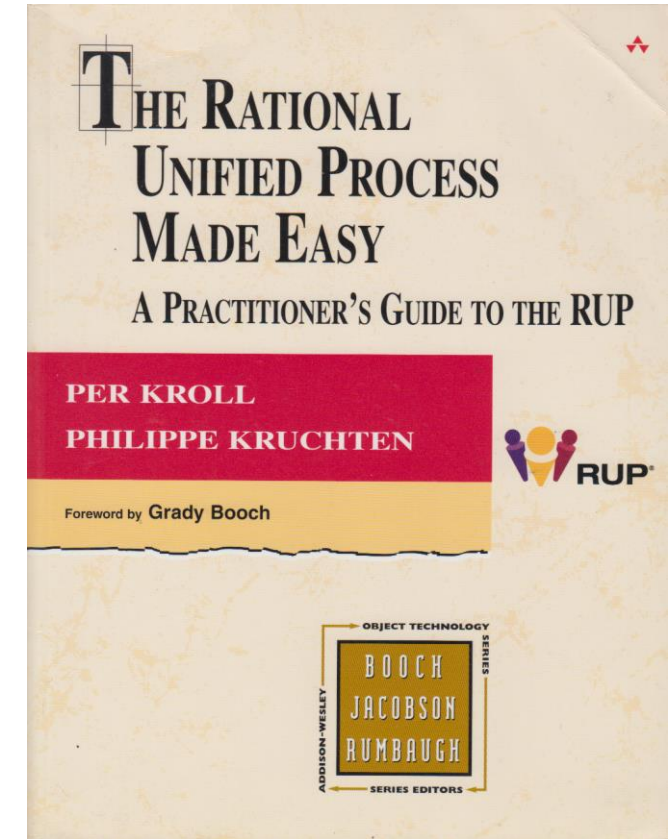
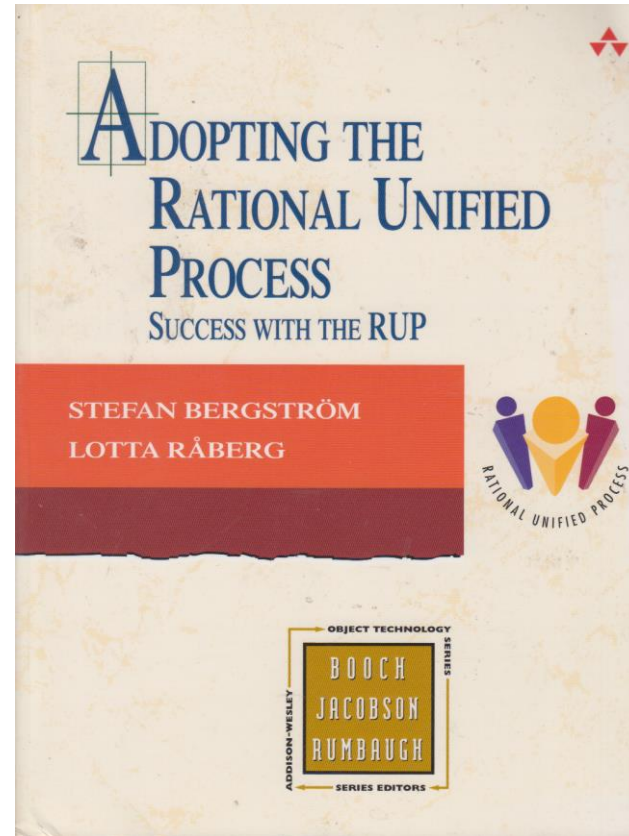
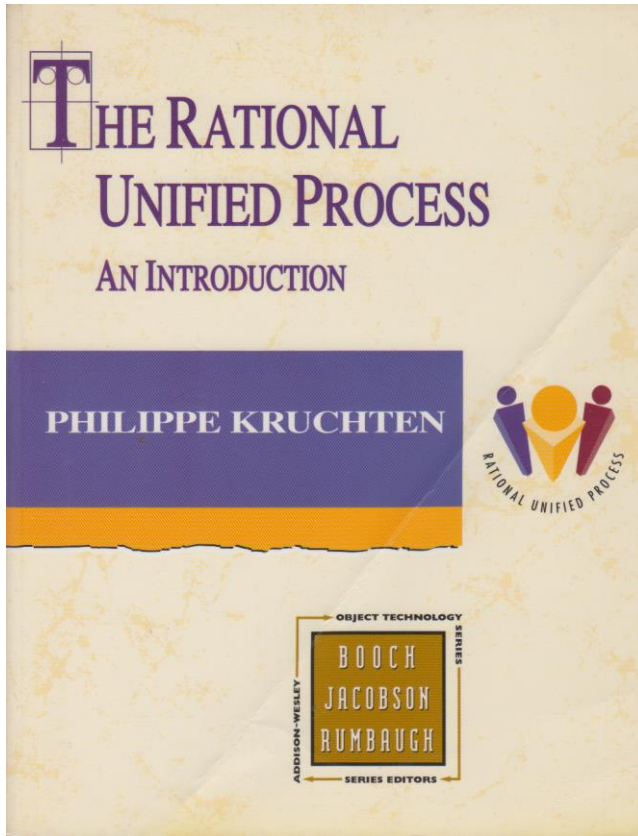
RUP took some explaining



RUP took some explaining



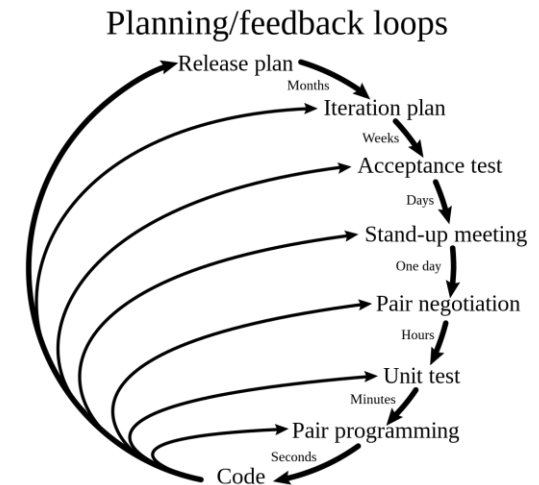
RUP took some explaining



A tale of two timelines



V



Iterative Development

Business value is delivered incrementally in time-boxed cross-discipline iterations.

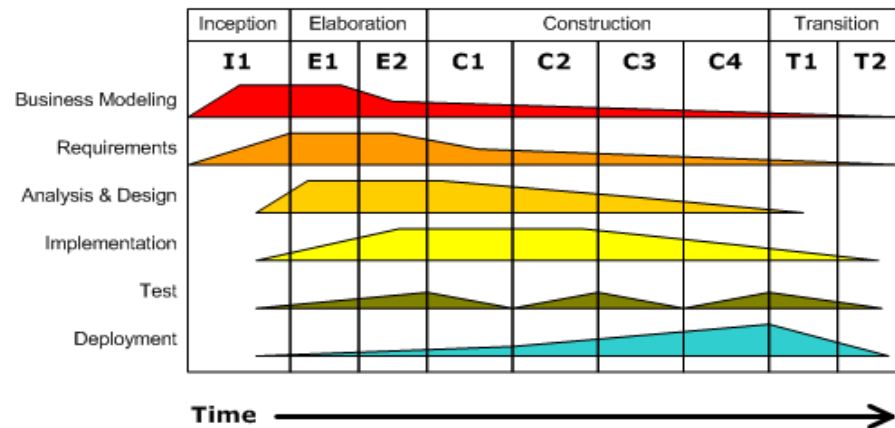
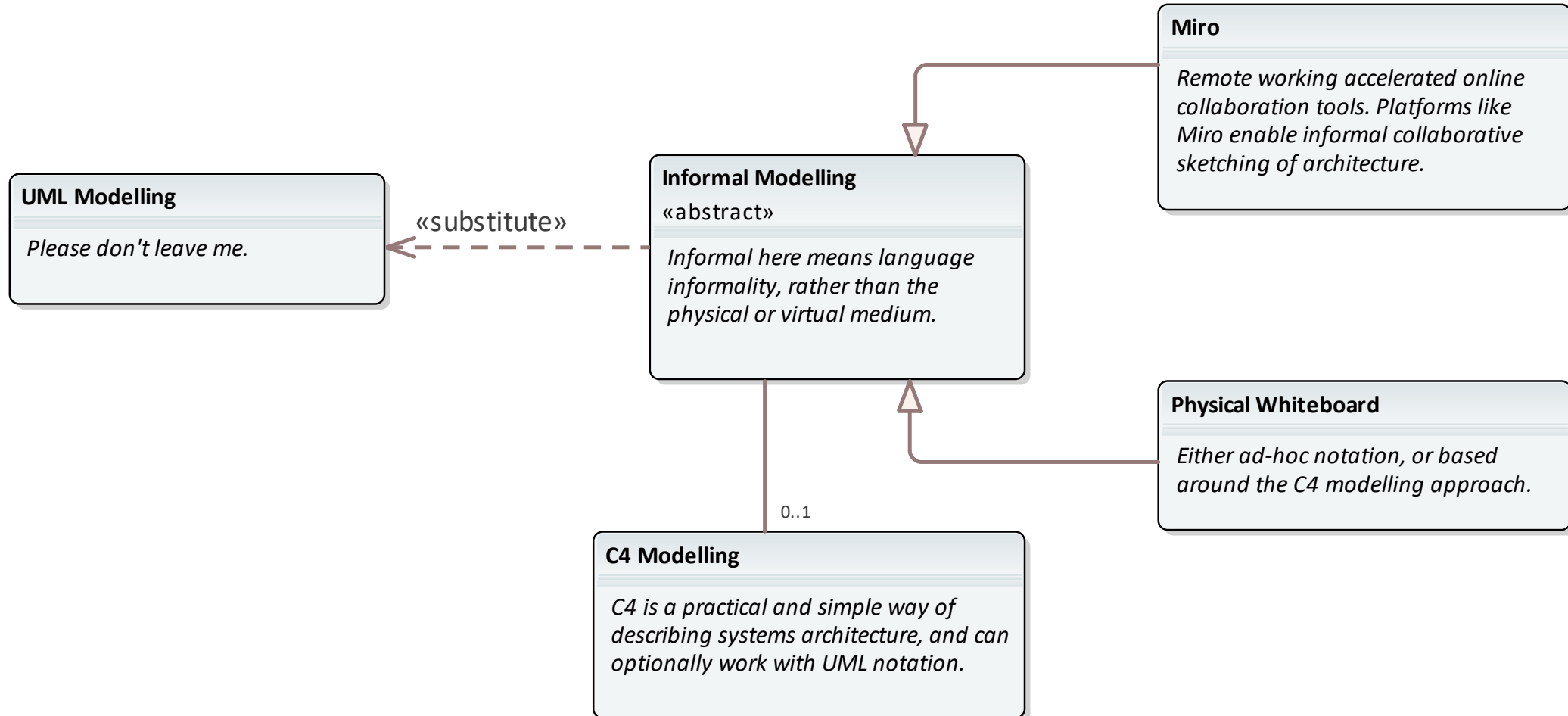


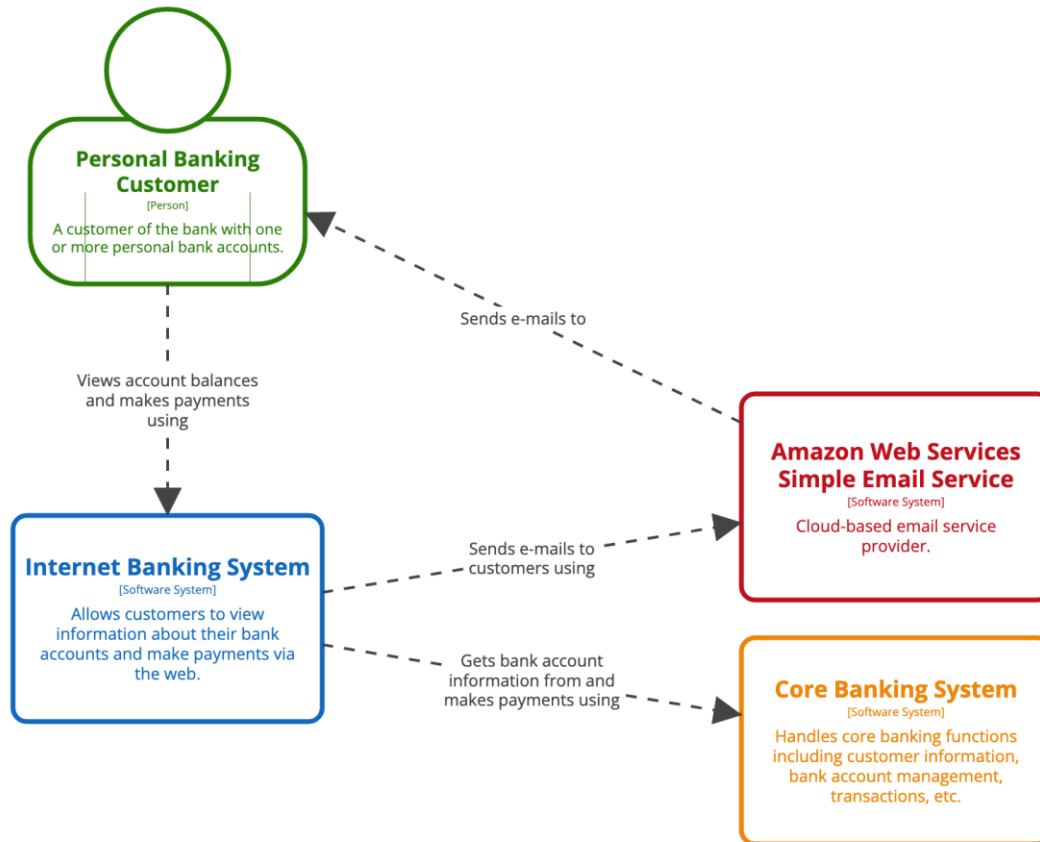
Image credit: Dutchguilder, Wikipedia, public domain.

The Agile Switcheroo : UML modelling

class Modelling Alternatives



The Agile Switcheroo : C4 side trip



System Context View: Internet Banking System

The system context diagram for a fictional Internet Banking System | Simon Brown | c4model.com | License: CC BY 4.0

Simon Brown's C4 is lightweight approach to software systems modelling:

Context
Container
Component
Code

The book

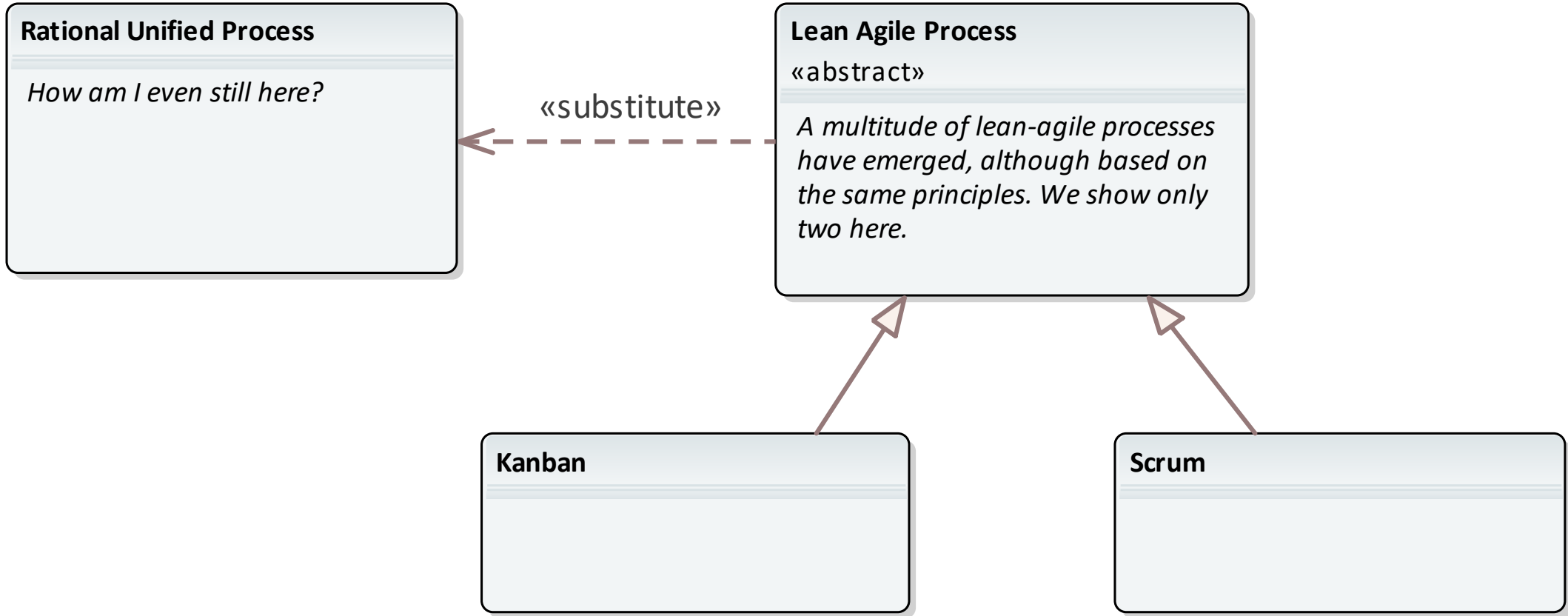


Image © Simon Brown | License CC-BY 4.0

<https://c4model.com/>

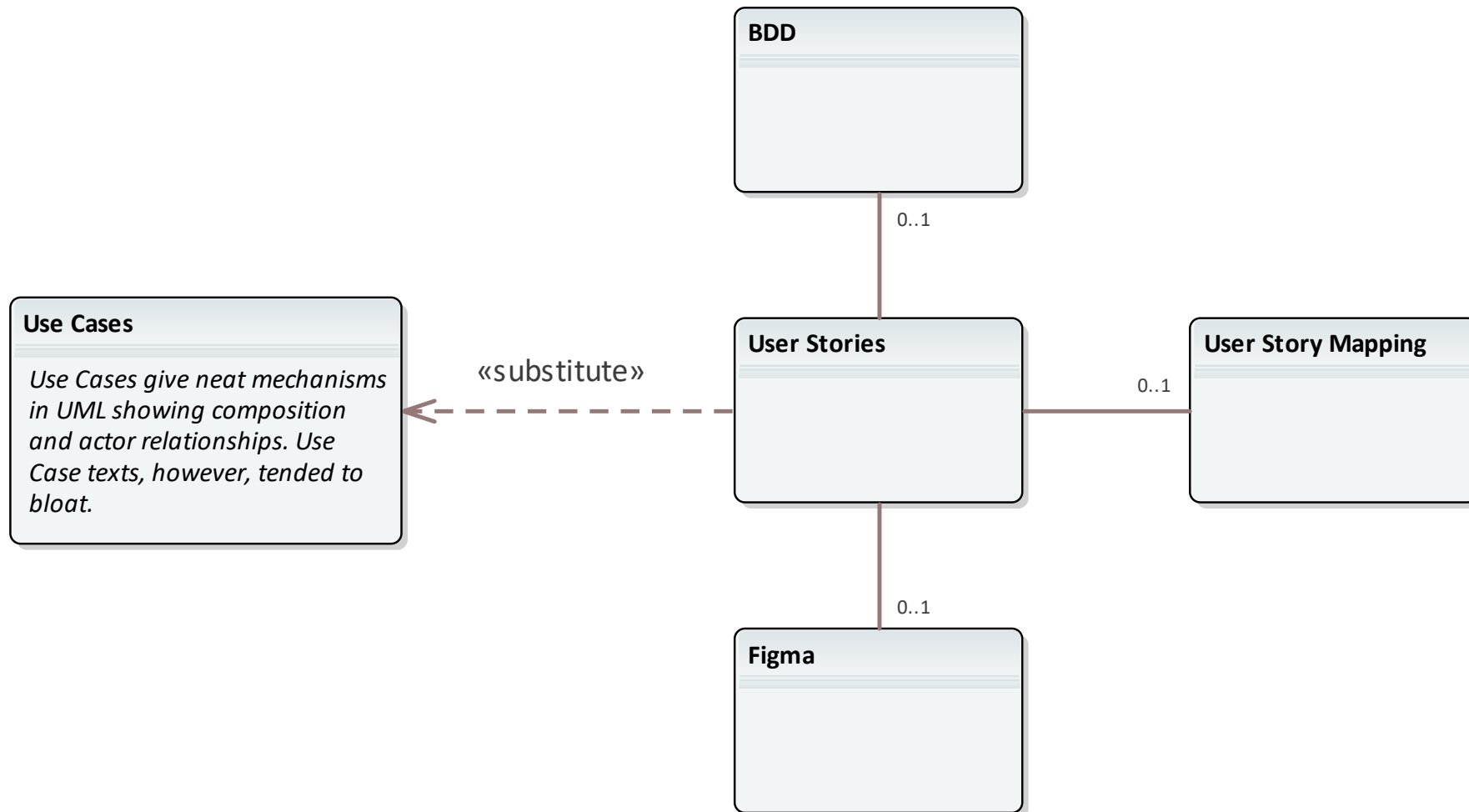
The Agile Switcheroo : RUP

class RUP Alternatives

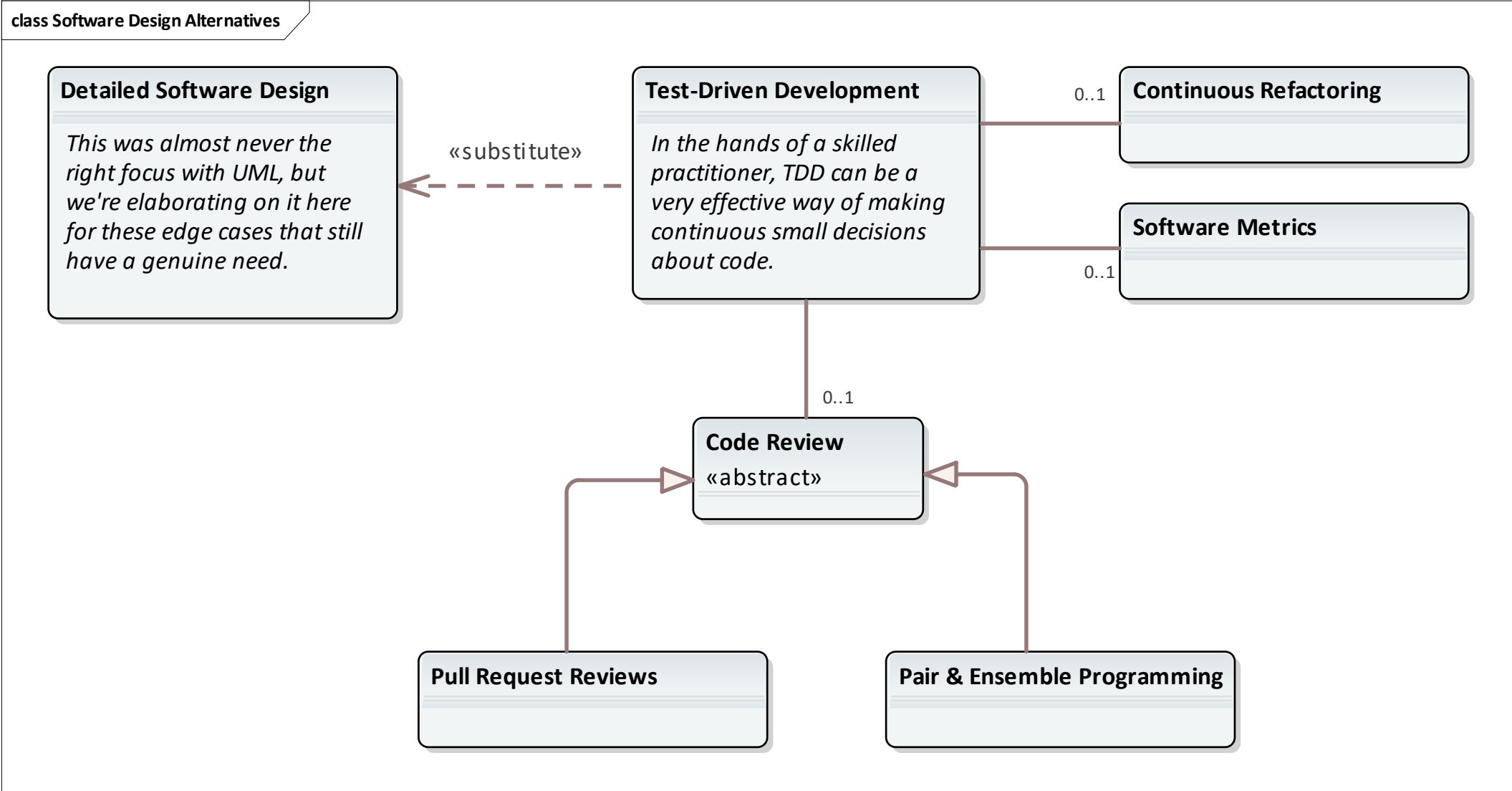


The Agile Switcheroo : Use Cases

class Use Case Alternatives



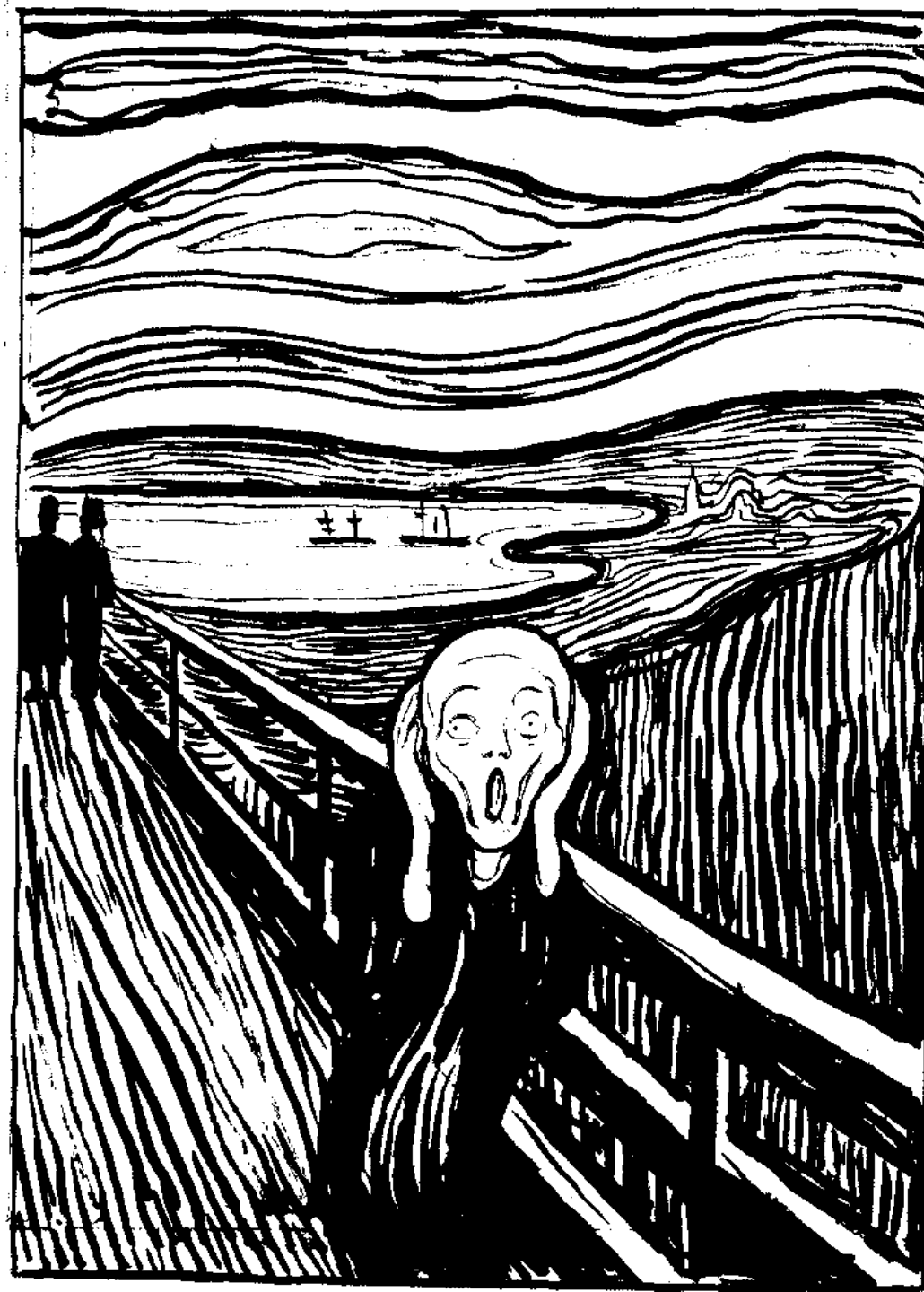
The Agile Switcheroo : Software Design



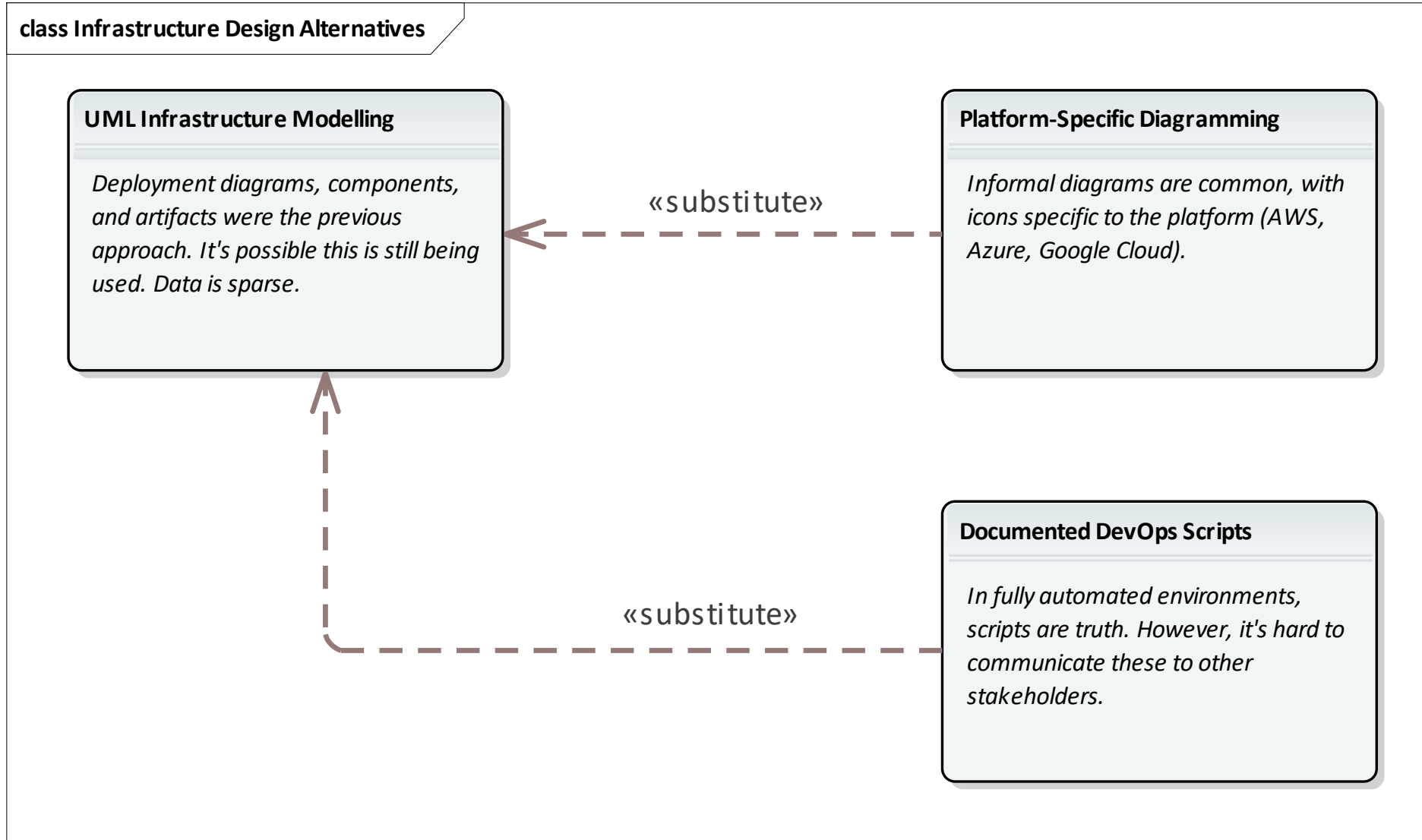
And then...

And then...

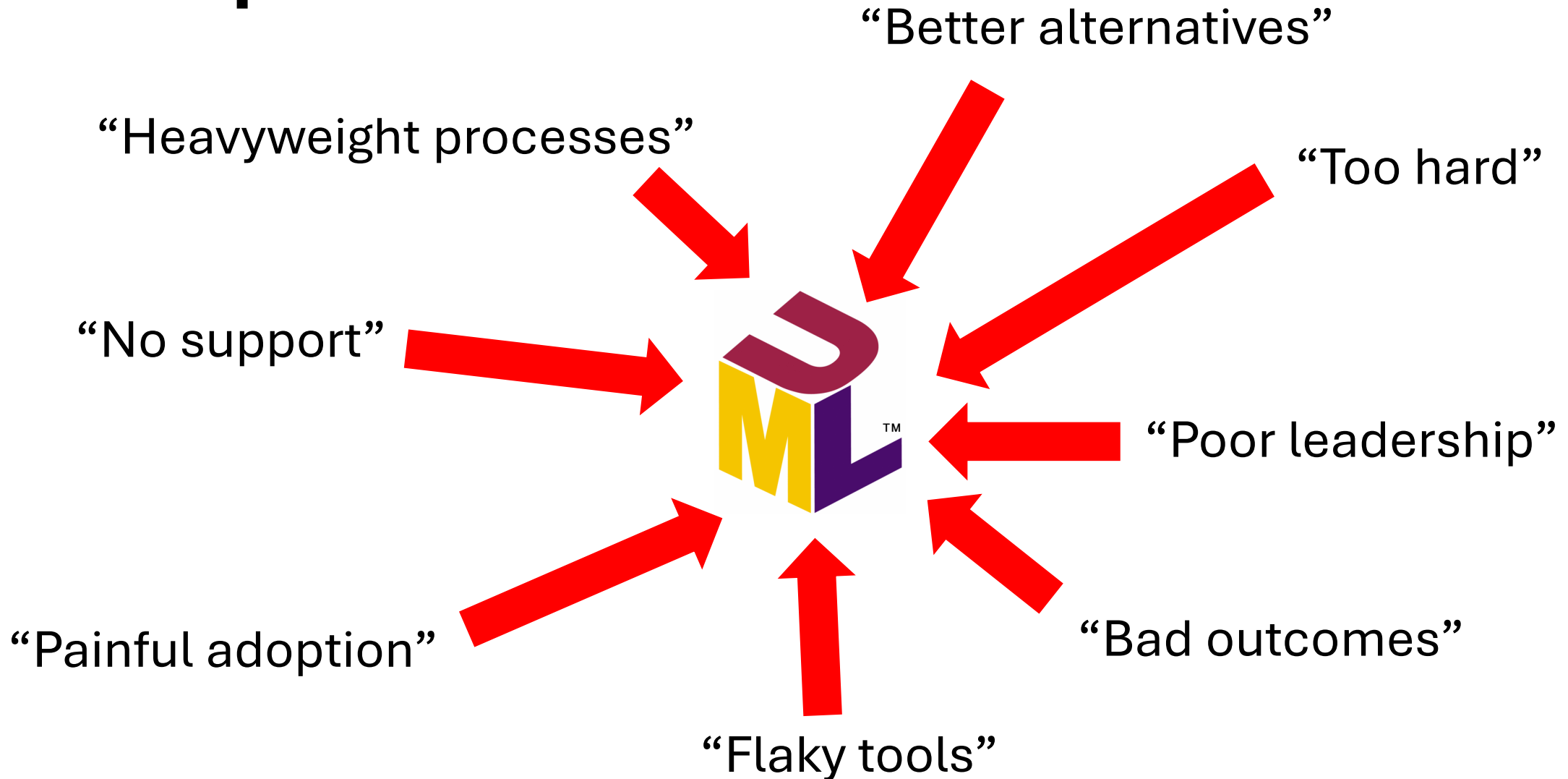
**All the
infrastructure
disappeared**



The Agile Switcheroo : Infrastructure



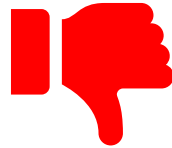
The squeeze



UML?

Big Design Up Front!

BOOO!



RUP?

Sneaky waterfall!

BOOO!



Bad tools?

Anti-agile!

BOOO!



Nope nope
nope



Schade 🙄

“Many organizations will use the UML as a common language for their project artifacts, but they will use the same UML diagram types in the context of different processes.

The UML is intentionally process independent,
and defining a standard process was not a goal of the UML or OMG's RFP.”

#1

Great alternatives emerged, but where does that knowledge live?

Unified View of Systems Knowledge

#2

Models can be queried, fragmented representations cannot.

Fast Impact Assessment

#3

What medium exists
now to convey
patterns and idioms?

A Tool for
Learning

#4

Does everyone have a shared understanding of the system architecture?

**Architecture
visibility
across roles**

#5

All those “good alternatives” you never quite got around to.

**All The Stuff
You Never
Actually Did**

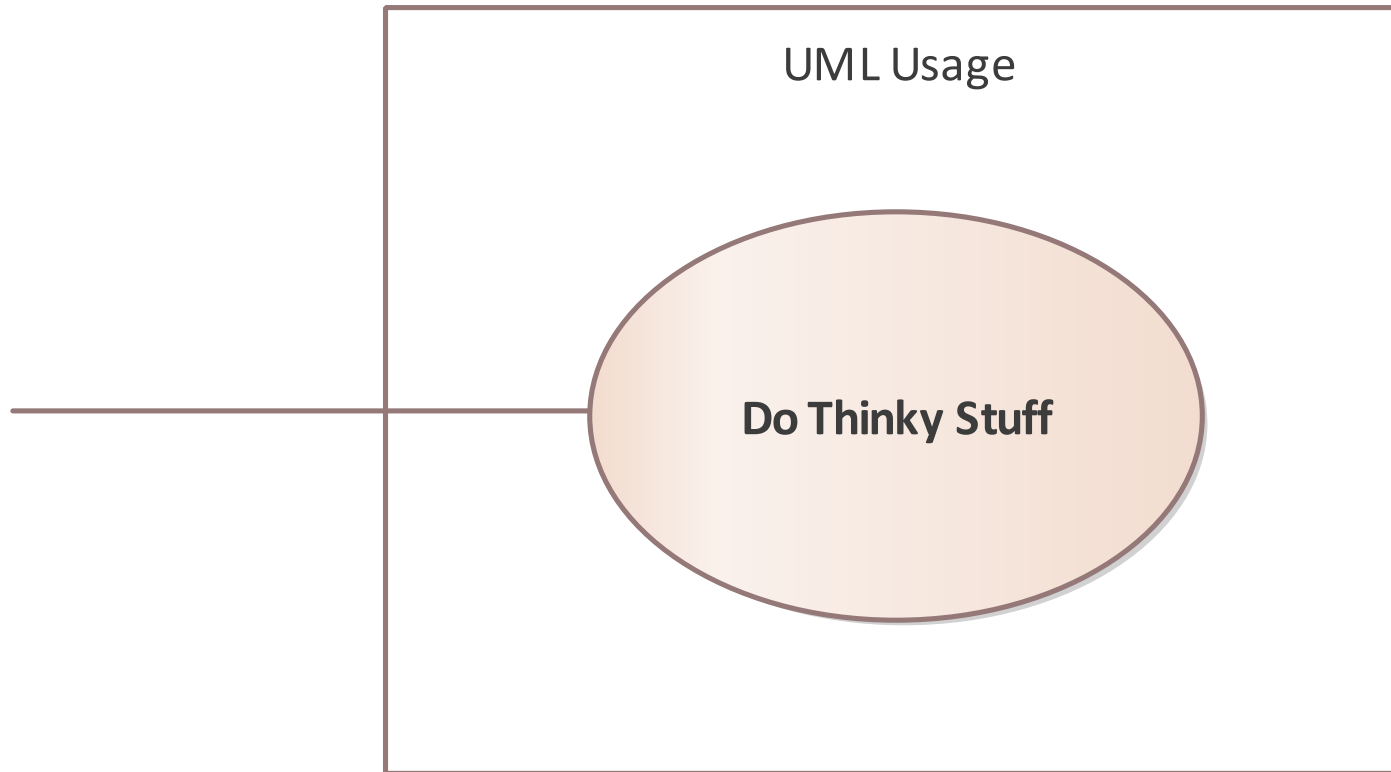
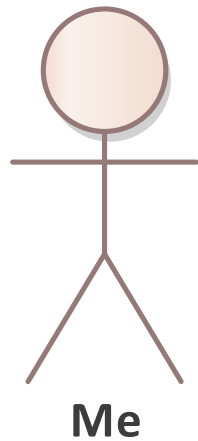
#5

All those “good alternatives” you never quite got around to.

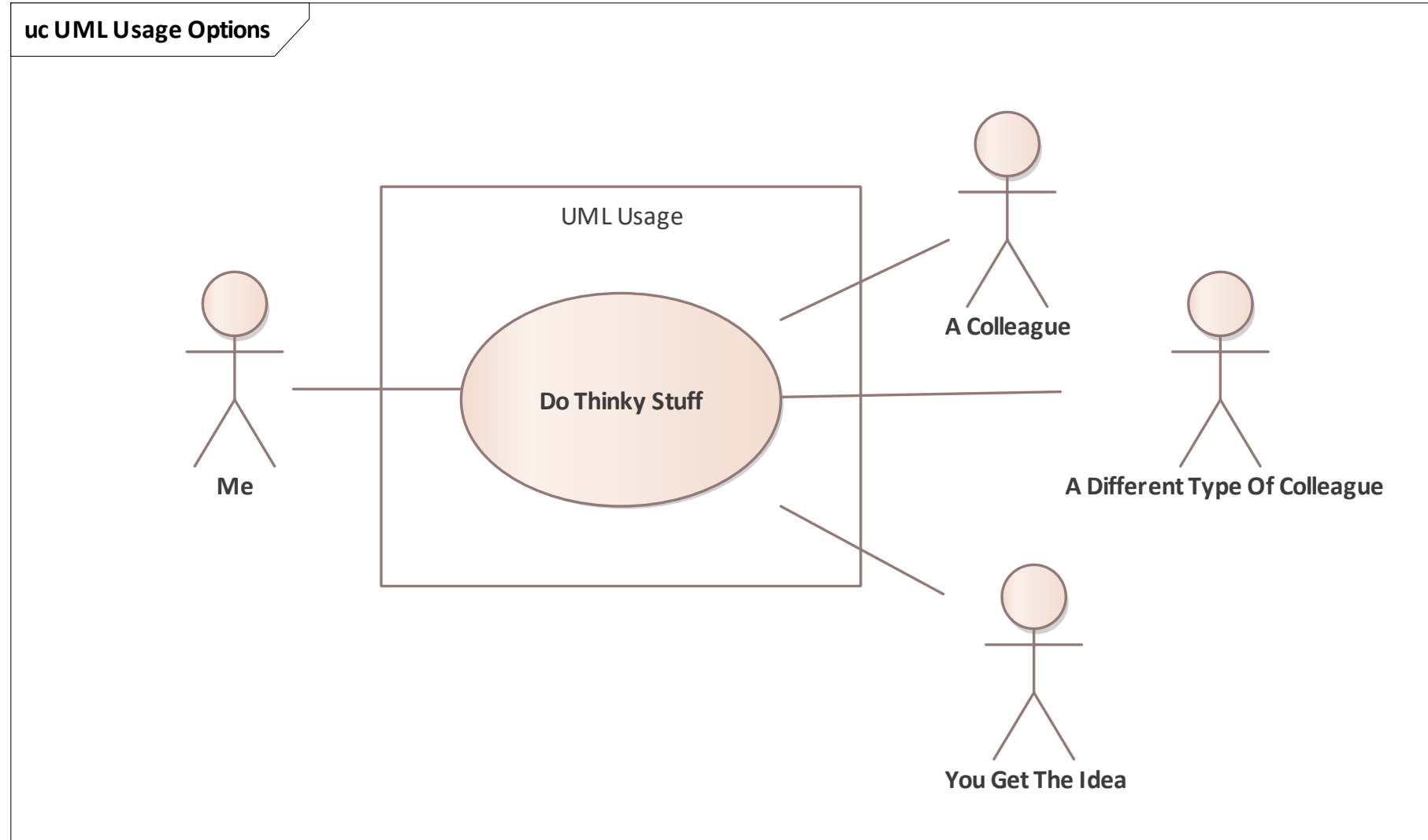
**All The Stuff
You Never
Actually Did**

How I use UML (some of the time)

uc UML Usage Options



How I use UML (when someone's paying me)





Questions!

Links and resources

- Martin Fowler's [UML Distilled](#) is a good starting point if you're new to UML or want to refresh your memory.
- [Scott Ambler's Agile Modelling](#) site is a useful repository of ideas and techniques.
- Craig Larman's book [Applying UML And Patterns](#) is a large, but comprehensive work on UML modelling.
- Simon Brown's C4 model is an essential read. His [book is on LeanPub](#), and [his website](#) has a video of one of his talks, which I recommend watching.
- If you like reading standards documents, then the [OMG standards website](#) is the place to go.
- If you want to source any of the books mentioned in the slides, Amazon will have second hand copies, and you will likely find them on Abe Books too.
- [Eclipse Papyrus](#) is a free and open source modelling tool. It's actively maintained, and a good place to start.
- [Enterprise Architect](#) is a good, mid-priced professional tool for modelling in UML.
- MagicDraw is one of the best UML tools, but eye-wateringly expensive. It's part of the "Catia Magic" portfolio now, and [good luck navigating the website](#).
- If you want to do some "model-storming" online, [Miro is the best tool](#) for that job.