Why You Should Write Your Own Framework

Why You Should **NOT?** Write Your Own Framework

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Hiller Measurements

#OurGiantsAreFemale

#OurGiantsAreFemale

Hedy Lamarr

What this presentation is

- Intended to be a conversation
- Something to think about when starting a project

What this presentation is (and isn’t)

Is:

- Intended to be a conversation
- Something to think about when starting a project

Isn’t:

- Incredibly technical
- A blueprint for success (or a blueprint at all)

What a framework isn't

- An architecture
- A design pattern
- A library
- A toolkit

What a framework isn’t

An architecture

“AF, DQMH, and other messaging frameworks are not architectures. They are messaging tools that you use to build your architecture.”

- Allen C. Smith, CLA

What a framework isn't

- An architecture
- A design pattern
- A library
- A toolkit

Framework

What a framework is

“Don’t call us, we’ll call you.”

– Richard E. Sweet, *The Mesa Programming Environment*

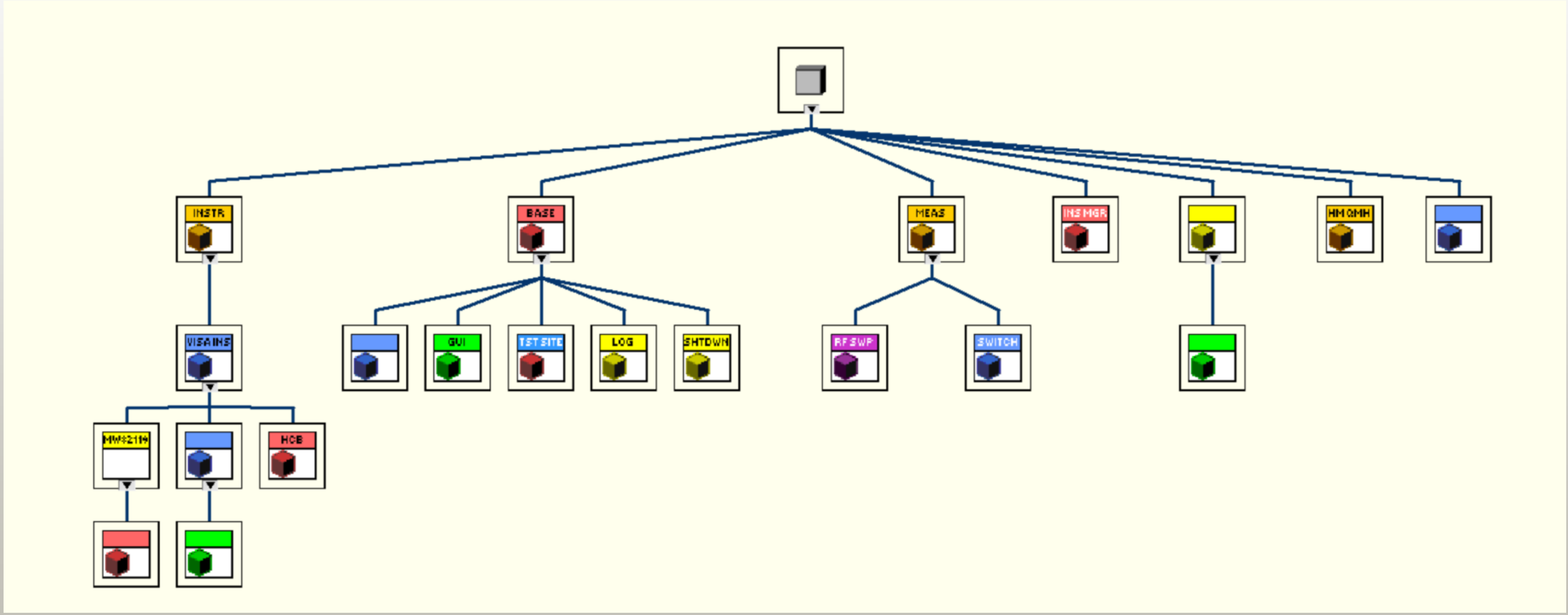
Inversion of Control

– Martin Fowler

“There is another important point. By this time, the Mesa project had moved from corporate research into a development organization. While some of the same designers worked on it in both places, there ***was now a definite engineering flavor*** to the effort. ***Several times a 90% solution was implemented*** since it could be done today, rather than wait until we understood how to completely solve the problem.”

– **Richard E. Sweet,** *The Mesa Programming Environment*

Extensibility



The holistic approach

Types of LabVIEW frameworks

Messaging

AF

NI QMH

DQMH

JKI SMO

Testing

NI UTF

JKI VI Tester

Development

GOOP

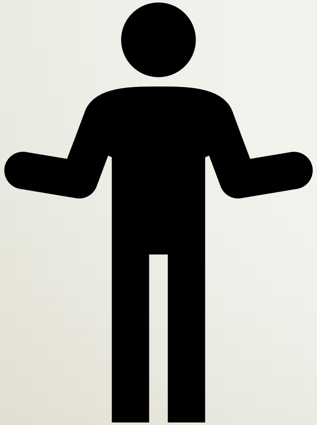
UI

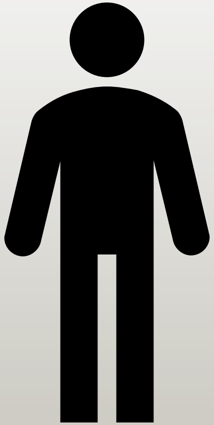
QControls

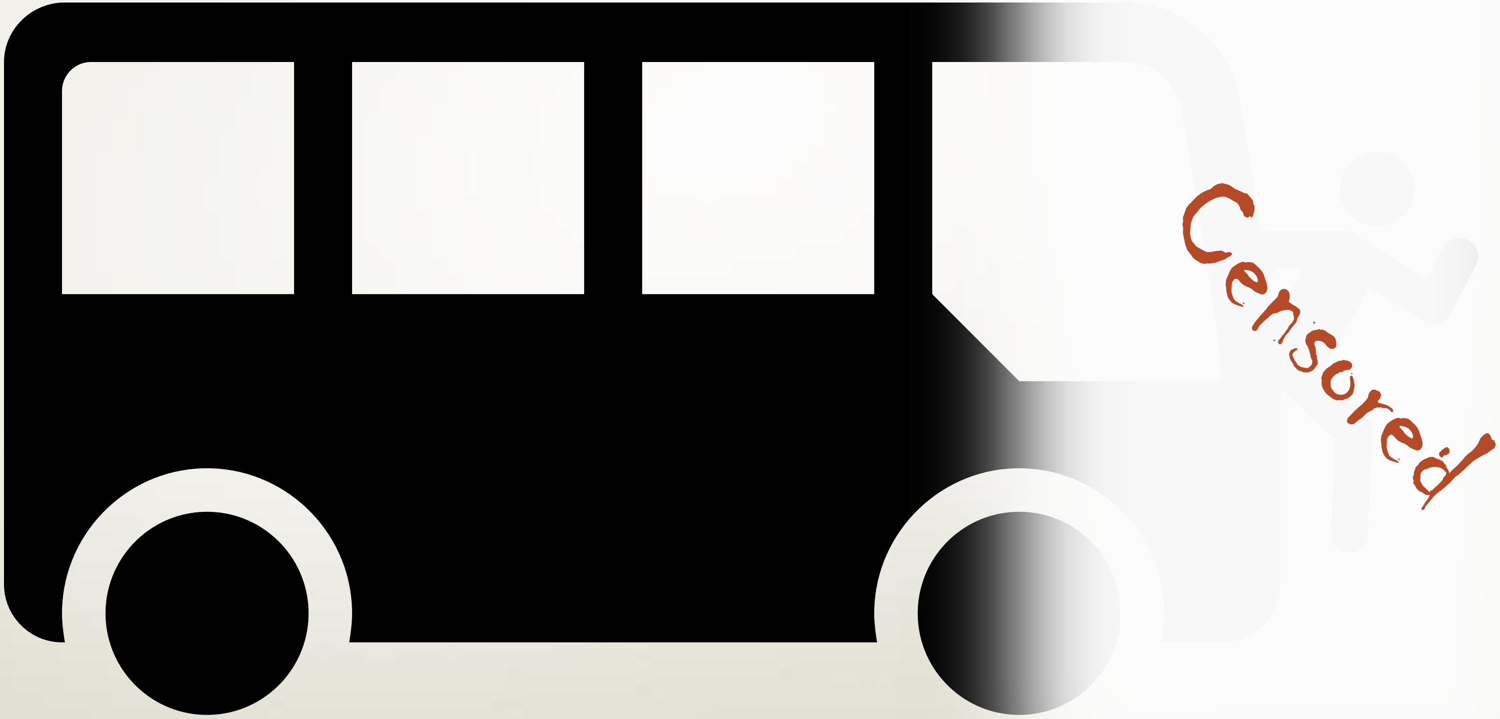
Communication

DCAF

Why you shouldn’t write your own



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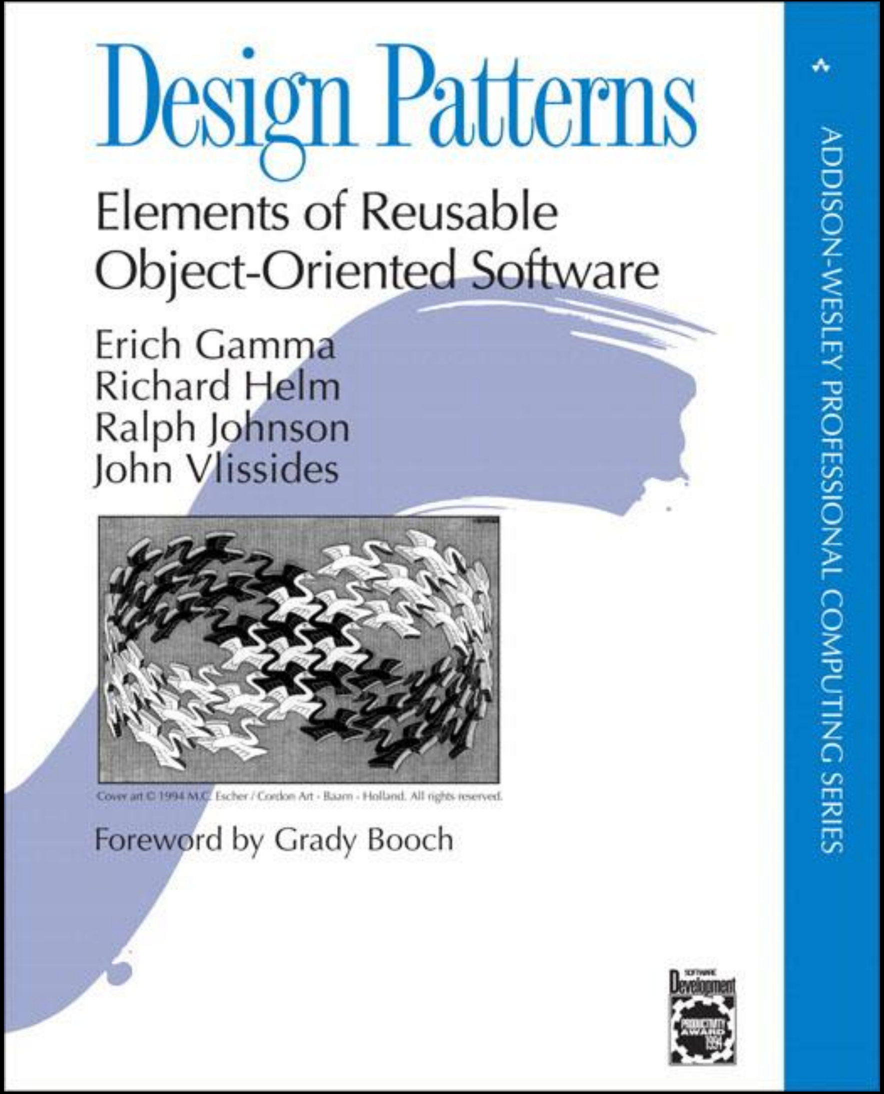

Design Patterns

Elements of Reusable Object-Oriented Software

Erich Gamma
Richard Helm
Ralph Johnson
John Vlissides

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Foreword by Grady Booch

ADDISON-WESLEY PROFESSIONAL COMPUTING SERIES

UP
DOWN

Every application has a unique architecture, but the frameworks they use should be immutable.

THAT'S HARD!

6800 Years

Success is measured in:

Man Hours

Man Months

Man Years

Man Decades

Success is measured in:

Man Years

“People don’t want to pay you for work you’ve already done.”

- Fabiola de la Cueva

Build and They Will Come

Build and You Own It … Forever

You don’t do this, and you don’t do that… *and by God, when you do it, you don’t get caught!*

- Douglas Stryker

Technical problems you will encounter

~~Technical problems you will encounter~~ Growth opportunities you will encounter

- Lifetime Management
- Inter-module communication
- Error Handling
- Instance management

Lifetime Management

- Deadlocks
- Termination order
- Termination mechanism
  - Sentinel value
  - Dedicated communication channel
  - Relying on an error

Inter-module communication

- Abstraction
- Addressing
- Delivery mechanisms
- Synchrony
- Postmaster or self-routing

Error handling

- Error Propagation
- Error Response

Instance management

- Singleton
- Manyton

Other problems you will encounter

- Ownership
- Support

Ownership

- Maintenance
- Lifecycle
- Plans for future development

Support

- Your framework
- Helping your customers make extensions
- Troubleshooting customer extensions

Not Getting Caught

Your Framework

Their Code

“Never design a reusable API for one use case; you will inevitably bias towards that one.”

- Stephen Loftus-Mercer

Support

- Open source means more people can (and possibly will) help out
- Documentation is (almost) never a bad thing
- Make sure framework is final before release

Release process

- Tests
- Repeatable build process
- **DEVPLOYMENT**

Summary

12,000 Years

An architecture is made using frameworks.

HOOK
3" PIN
DERRICK
BOOM IN POSITION TO LIFT COMPLETED SPIRE INTO PLACE
③
MAST IS NEXT RAISED BY "GIN POLE", SET IN PLACE, AND BOOM REMOUNTED. DERRICK LIFTS MATERIAL FOR TWO MORE FLOORS AND OPERATION IS REPEATED
BOOM IN POSITION TO HOIST SECTIONS TO TOP OF BUILDING BEFORE ASSEMBLY
DETAIL OF SPECIAL FITTING RIVETED ON SPIRE TO LIFT IT INTO PLACE
SPECIAL PLATFORMS (WHICH WERE LATER REMOVED) FOR SETTING SPIRE ON TOP OF BUILDING
SPIRE IS SHEATHED WITH "K.A.2." A SPECIAL RUSTLESS STEEL
BOOM
SOCKET 8'-1½" SQUARE READY TO RECEIVE BASE. HERE IT WILL BE RIVETED IN PLACE
TOP OF BUILDING
75TH FLOOR
FITTING FOR LIFTING SPIRE INTO PLACE
②
BOOM IS THEN GUYED IN PLACE AND BECOMES A "GIN POLE"
MAS
PHANTOM VIEW OF OUTER SHELL SHOWS SPIRE IN PLACE
SHAFT IN WHICH THE THREE-PIECE SPIRE WAS ASSEMBLED
①
BOOM IS UNSHIPPE AT PIVOT AND RAISED TO TOP OF COMPLETE STEEL WORK
MAIN VIEW SHOWS ASSEMBLED SPIRE WITH SHEATHED TIP READY TO BE HOISTED INTO PLACE
YELLOW PINE BEAMS 12"X12"X20" SUPPORTED SPIRE STRUCTURE DURING ASSEMBLY AT 67TH FLOOR
STEEL I-BEAM
HOW DERRICK "WALKS U TO TOP OF BUILDING

In Conclusion:

Write your own framework!

Thanks!