Learn the Lingo
Design Patterns

Presented by Jeremy Clark
www.jeremybytes.com

What Are Design Patterns?

"Each pattern describes a problem which occurs over and over again in our environment, and then describes the core of the solution to the problem, in such a way that you can use this solution a million times over, without ever doing it the same way twice."
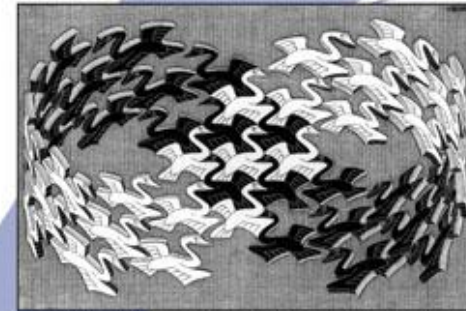
-- Christopher Alexander

The Gang Of Four (GoF)

Design Patterns:
Elements of Reusable
Object-Oriented Software

- Erich Gamma
- Richard Helm
- Ralph Johnson
- John Vlissides

Anatomy Of A Design Pattern

- ## Pattern Name
  - A unique way of referring to the pattern

- ## Problem
  - The problem that occurs "over and over again"

- ## Solution
  - The "core" of the solution

- ## Consequences
  - The drawbacks or considerations when using the pattern

The GoF Patterns

Abstract Factory

Builder

Factory Method

Prototype

Singleton

Adapter

Bridge

Composite

Decorator

Facade

Flyweight

Proxy

Chain of Responsibility

Command

Interpreter

Iterator

Mediator

Memento

Observer

State

Strategy

Template Method

Visitor

A More Approachable Reference

- Head First Design Patterns
  - Eric Freeman
  - Elisabeth Freeman

Covers 12 GoF Patterns

A Brain-Friendly Guide

Head First Design Patterns

Avoid those embarrassing coupling mistakes

Learn why everything your friends know about Factory pattern is probably wrong

Discover the secrets of the Patterns Guru

Load the patterns that matter straight into your brain

Find out how Starbuzz Coffee doubled their stock price with the Decorator pattern

See why Jim's love life improved when he cut down his inheritance

O'REILLY®

Eric Freeman & Elisabeth Freeman
with Kathy Sierra & Bert Bates

Why Should We Care?

- Well described solutions

- Shared vocabulary

- Concise language

- Think in design rather than implementation

- Encourage other developers to learn patterns

Observer

GoF Description:

"Define a one-to-many dependency between objects so that when one object changes state, all its dependents are notified and updated automatically."

Real World Observer

- Twitter

Jeremy Clark

@jeremybytes

Developer Betterer

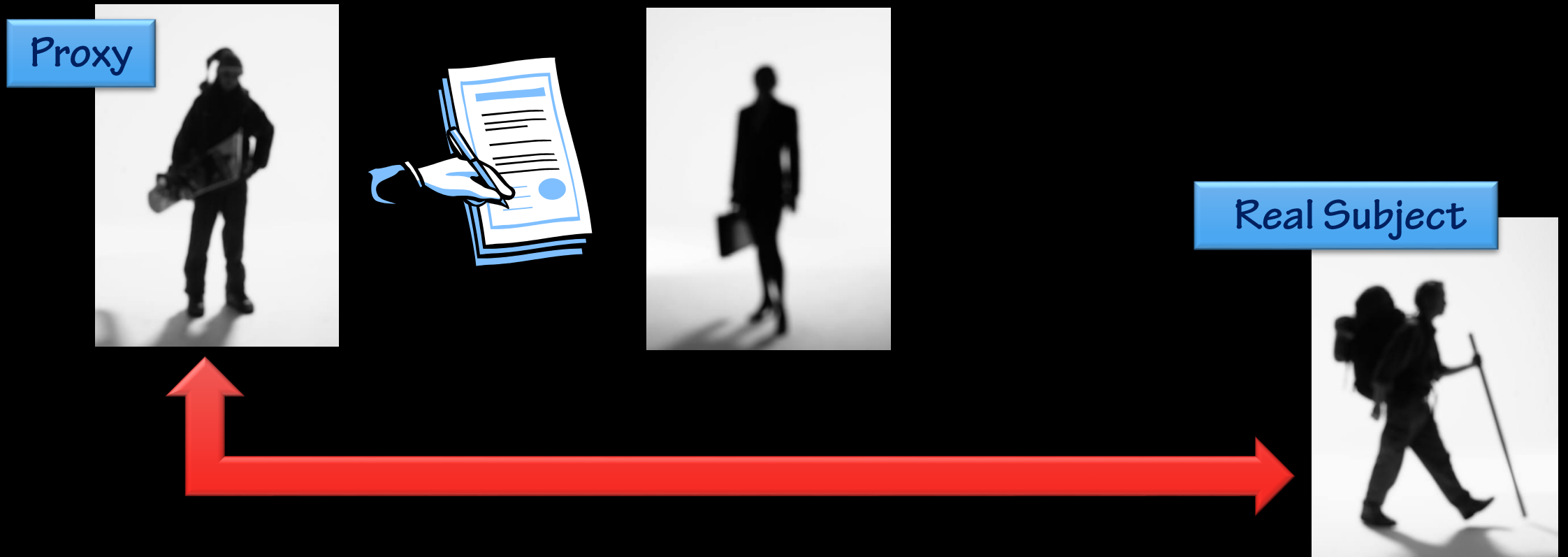📍 Anaheim, California, USA

🔗 jeremybytes.com

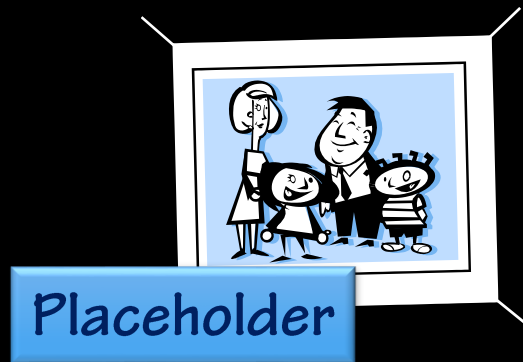📅 Joined June 2010

Proxy

GoF Description:

"Provide a surrogate or placeholder for another object to control access to it."

Real World Proxy

- Power of Attorney

Proxy

Real Subject

Placeholder

Click

Original

Chain Of Responsibility

GoF Description:

"Avoid coupling the sender of a request to its receiver by giving more than one object a chance to handle the request. Chain the receiving objects and pass the request along the chain until an object handles it."

Real World Chain Of Responsibility

- Tech Support

©Jeremy Clark 2016

Iterator

GoF Description:

"Provide a way to access the elements of an aggregate object sequentially without exposing its underlying representation."

- TV Remote

Facade

GoF Description:

"Provide a unified interface to a set of interfaces in a subsystem. Facade defines a higher-level interface that makes the subsystem easier to use."

Real World Facade

- Play DVD
  - Turn on TV
  - Set TV to HDMI1
  - Turn on Stereo
  - Set Stereo to Aux Input
  - Turn on DVD Player
  - "Play" on DVD Player

A Million Implementations

"Each pattern describes a problem which occurs over and over again in our environment, and then describes the core of the solution to the problem, in such a way that **you can use this solution a million times over, without ever doing it the same way twice.**"

-- Christopher Alexander

Why Should We Care?

- Well described solutions

- Shared vocabulary

- Concise language

- Think in design rather than implementation

- Encourage other developers to learn patterns

Thank You!

Jeremy Clark

- http://www.jeremybytes.com
- jeremy@jeremybytes.com
- @jeremybytes