

C# Design Patterns: Command

COMMAND PATTERN



Filip Ekberg

PRINCIPAL CONSULTANT & CEO

@fekberg fekberg.com



Course Overview



Understanding and implementing the command pattern



Identifying and leveraging existing implementations



Understanding the benefits and tradeoffs



Command Pattern Characteristics

Command

I am the command!

Receiver

The command runs me!

Invoker

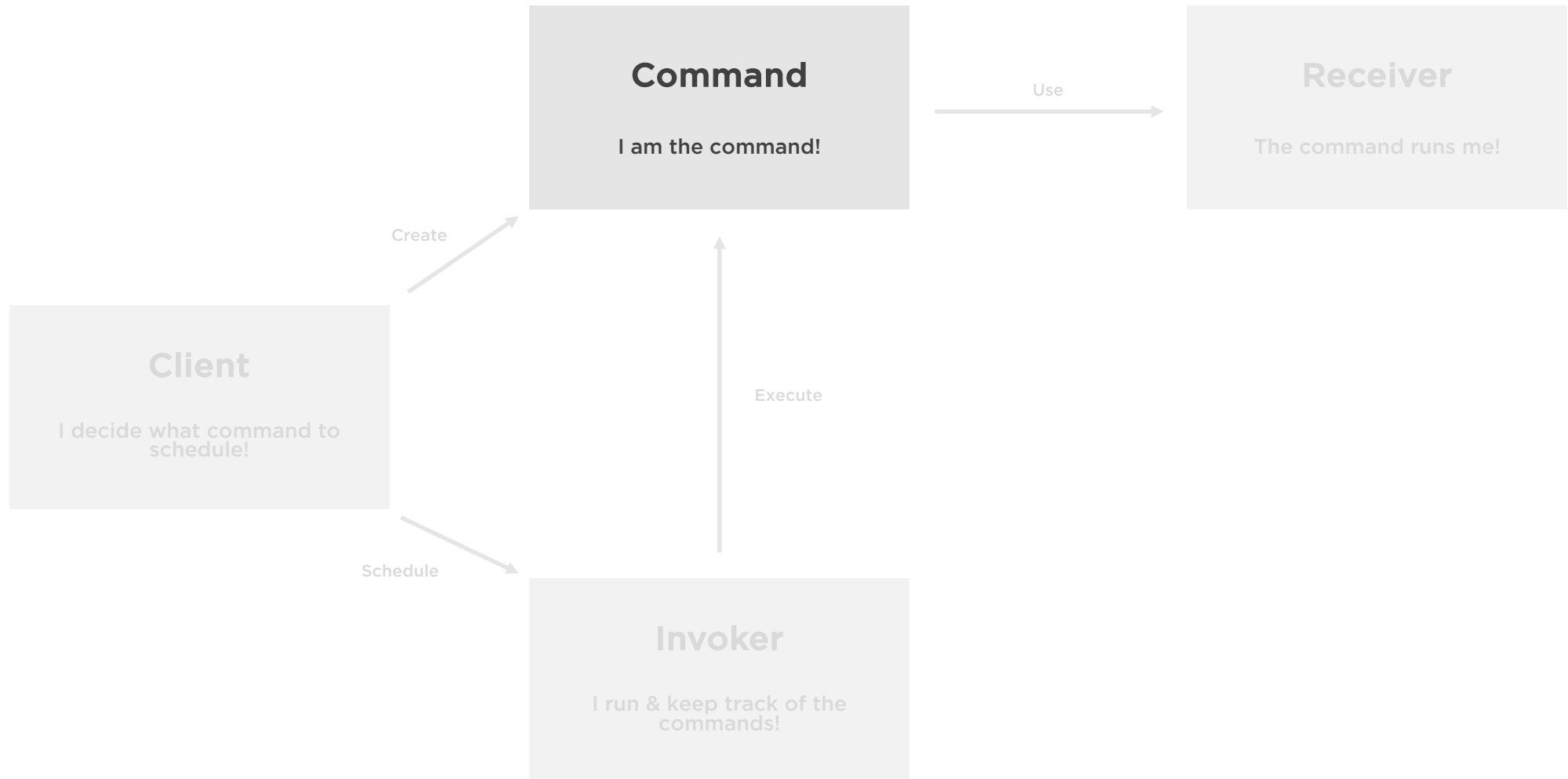
I run & keep track of the commands!

Client

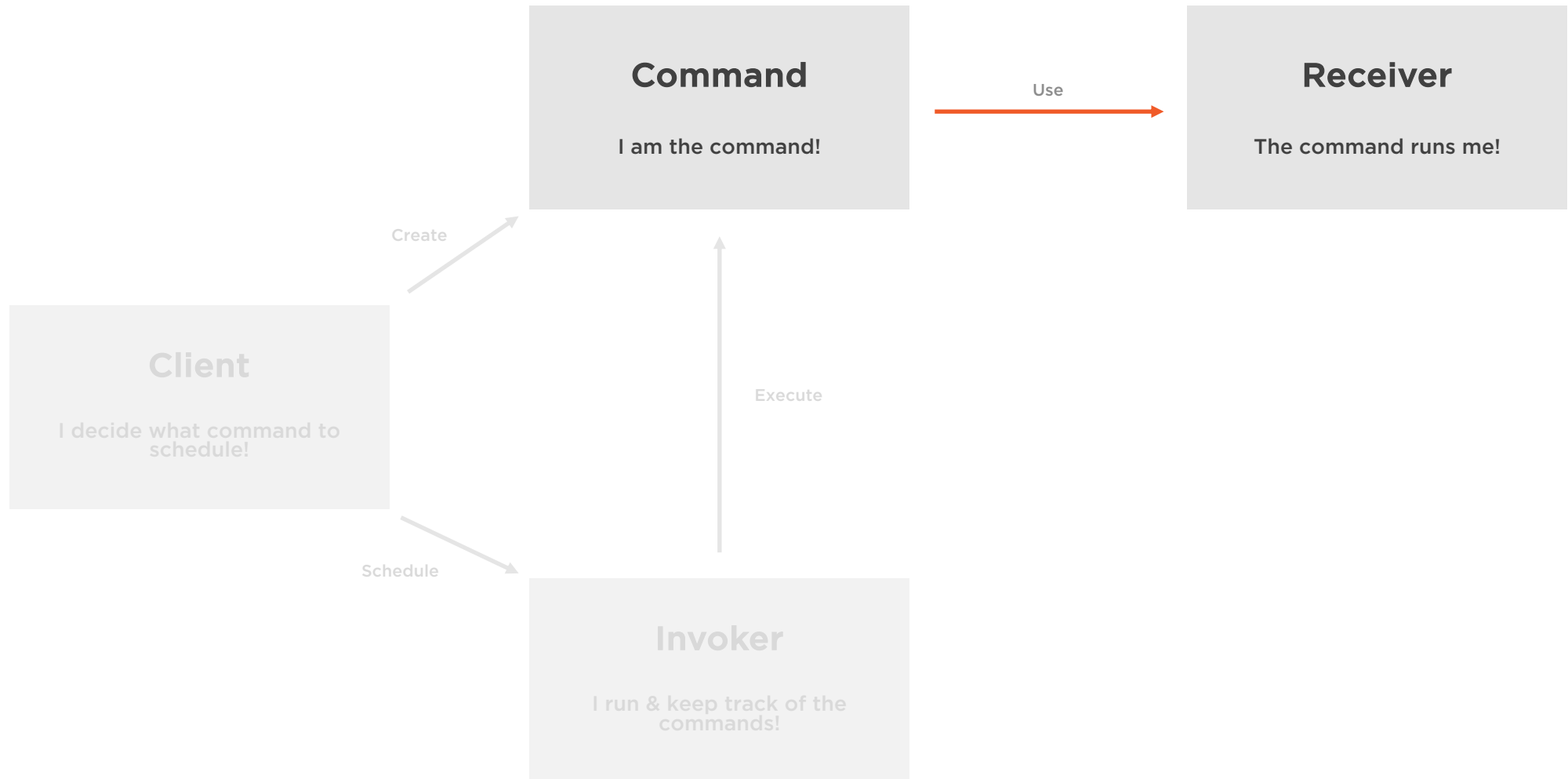
I decide what command to schedule!



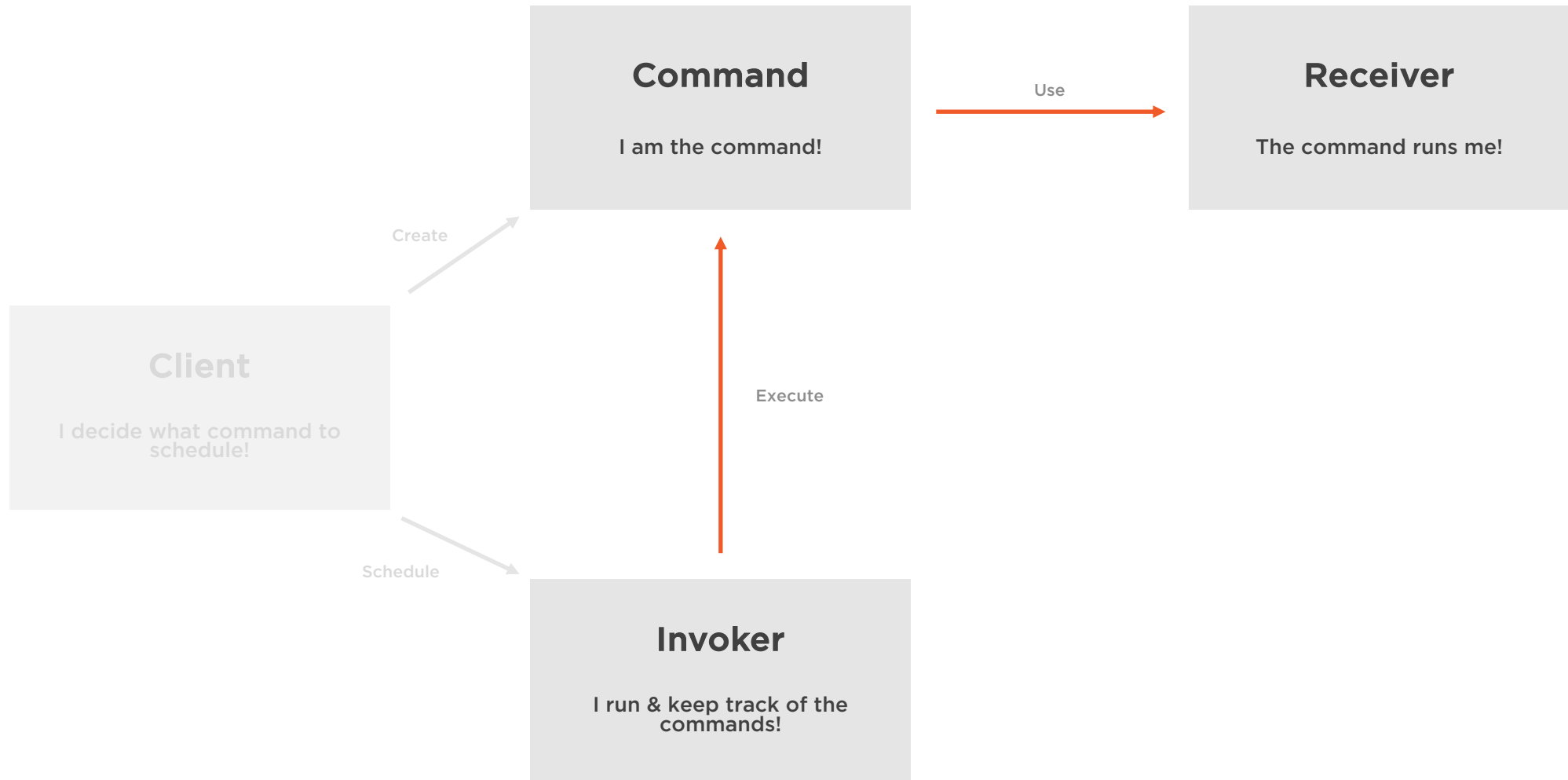
Command Pattern Characteristics



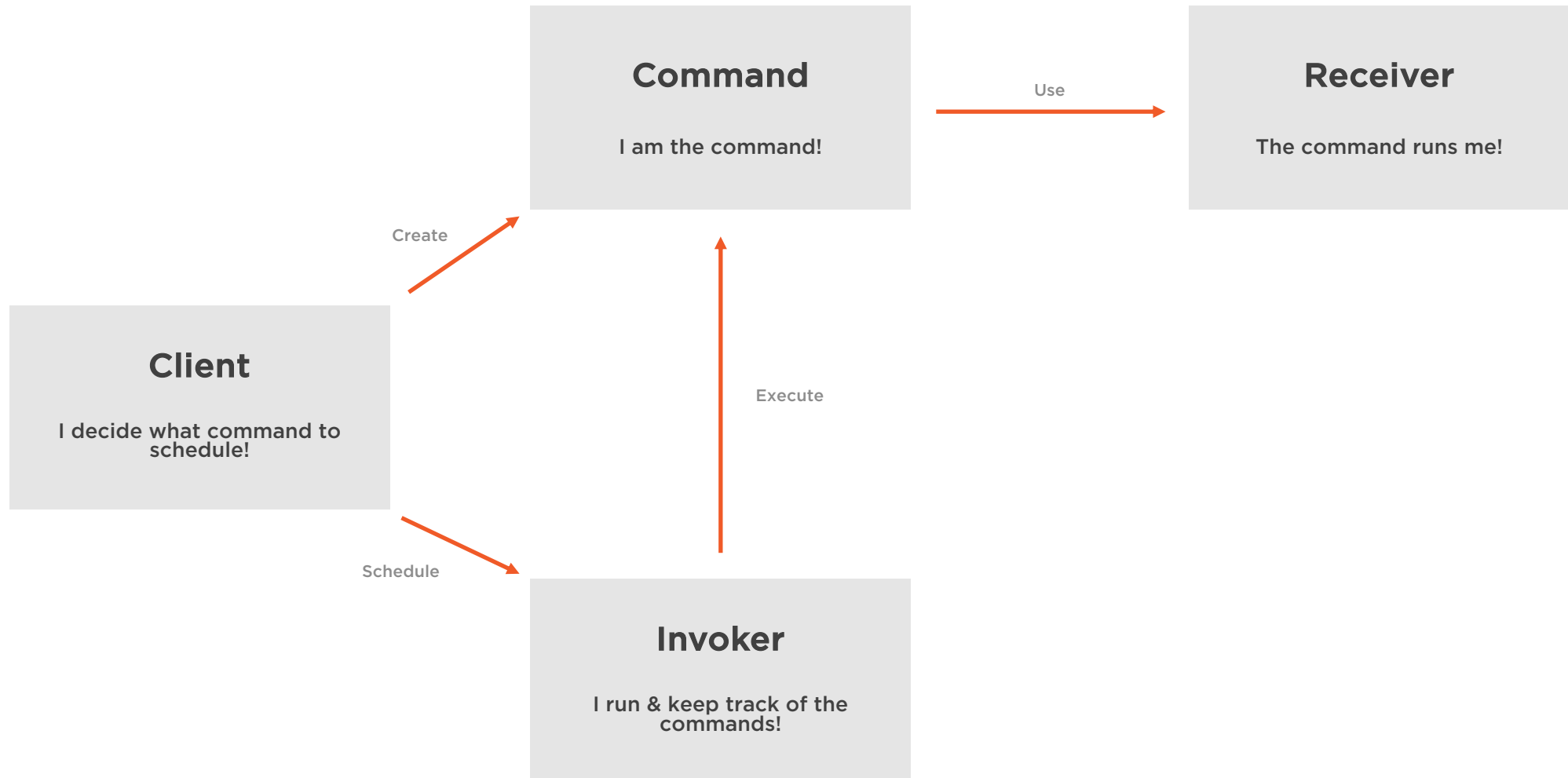
Command Pattern Characteristics



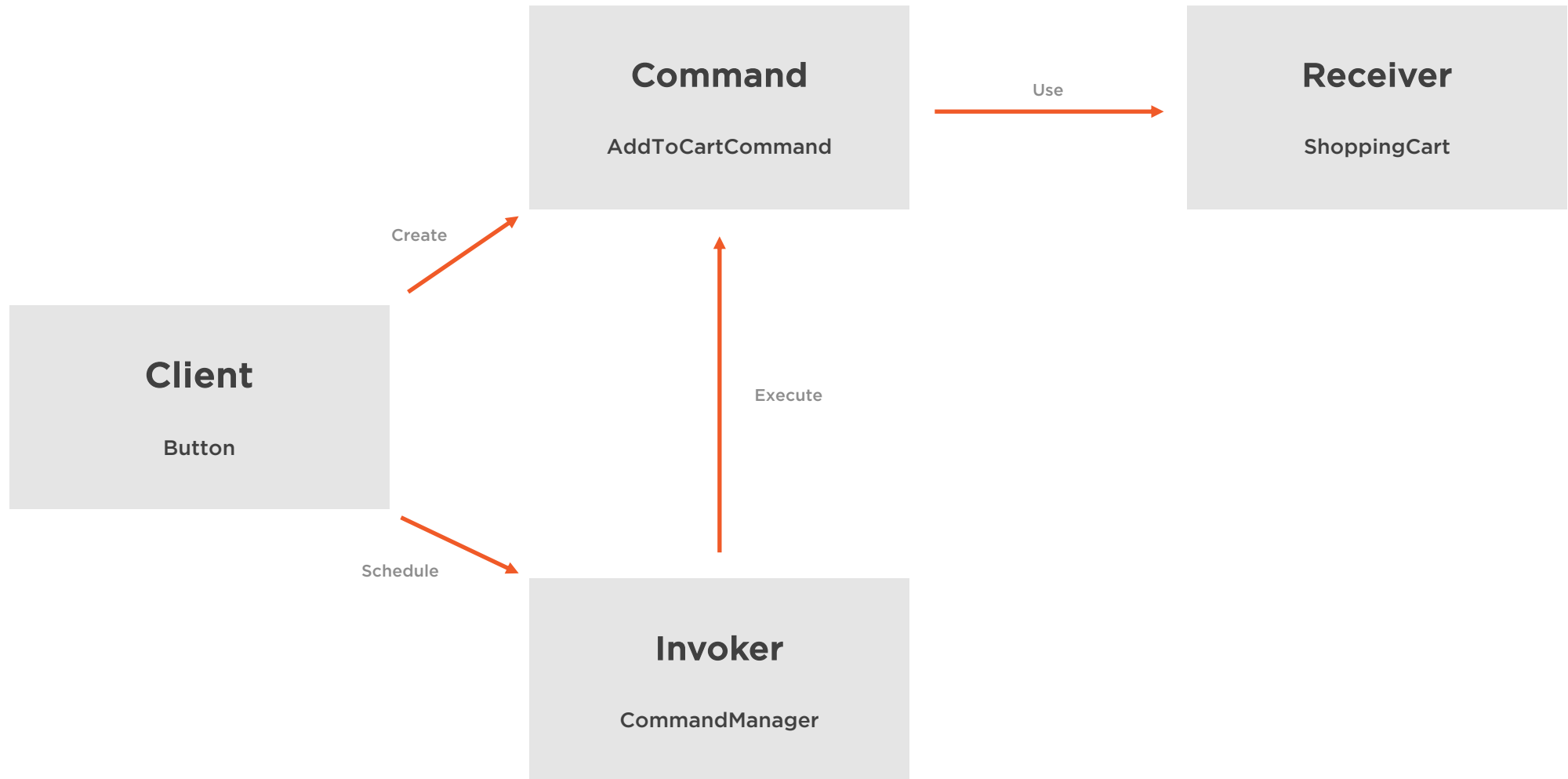
Command Pattern Characteristics



Command Pattern Characteristics



Command Pattern Characteristics



A command contains all the data to process the request now or at a later time



Example: AddToCartCommand



The product which should be added to the cart



The shopping cart



A way to check stock availability



Example

Shopping

Products

EOSR1	Canon EOS R	\$1099	+
EOS70D	Canon EOS 70D	\$699	+
ATOMOSNV	Atomos Ninja V	\$799	+
SM7B	Shure SM7B	\$399	+

Shopping Cart

EOSR1	Canon EOS R	\$1099	1	+	-	Remove
SM7B	Shure SM7B	\$399	2	+	-	Remove
EOS70D	Canon EOS 70D	\$699	1	+	-	Remove

Clear

Checkout



Example: Execute

Shopping

AddToCartCommand

Products

EOSR1	Canon EOS R	\$1099	+
EOS70D	Canon EOS 70D	\$699	+
ATOMOSNV	Atomos Ninja V	\$799	+
SM7B	Shure SM7B	\$399	+

ChangeQuantityCommand

Shopping Cart

EOSR1	Canon EOS R	\$1099	1	+	-	Remove
SM7B	Shure SM7B	\$399	2	+	-	Remove
EOS70D	Canon EOS 70D	\$699	1	+	-	Remove

RemoveFromCartCommand

RemoveAllFromCartCommand

Clear

CheckoutCommand

Checkout



Example: CanExecute

Shopping

Products

EOSR1	Canon EOS R	\$1099	+
EOS70D	Canon EOS 70D	\$699	+
ATOMOSNV	Atomos Ninja V	\$799	+
SM7B	Shure SM7B	\$399	+

Shopping Cart

EOSR1	Canon EOS R	\$1099	1	+	-	Remove
SM7B	Shure SM7B	\$399	2	+	-	Remove
EOS70D	Canon EOS 70D	\$699	1	+	-	Remove

Clear

Checkout

Products in stock

Items in cart



The command pattern can easily be leveraged to allow undo or redo functionality



Demo



Implementing the Command Pattern



Demo



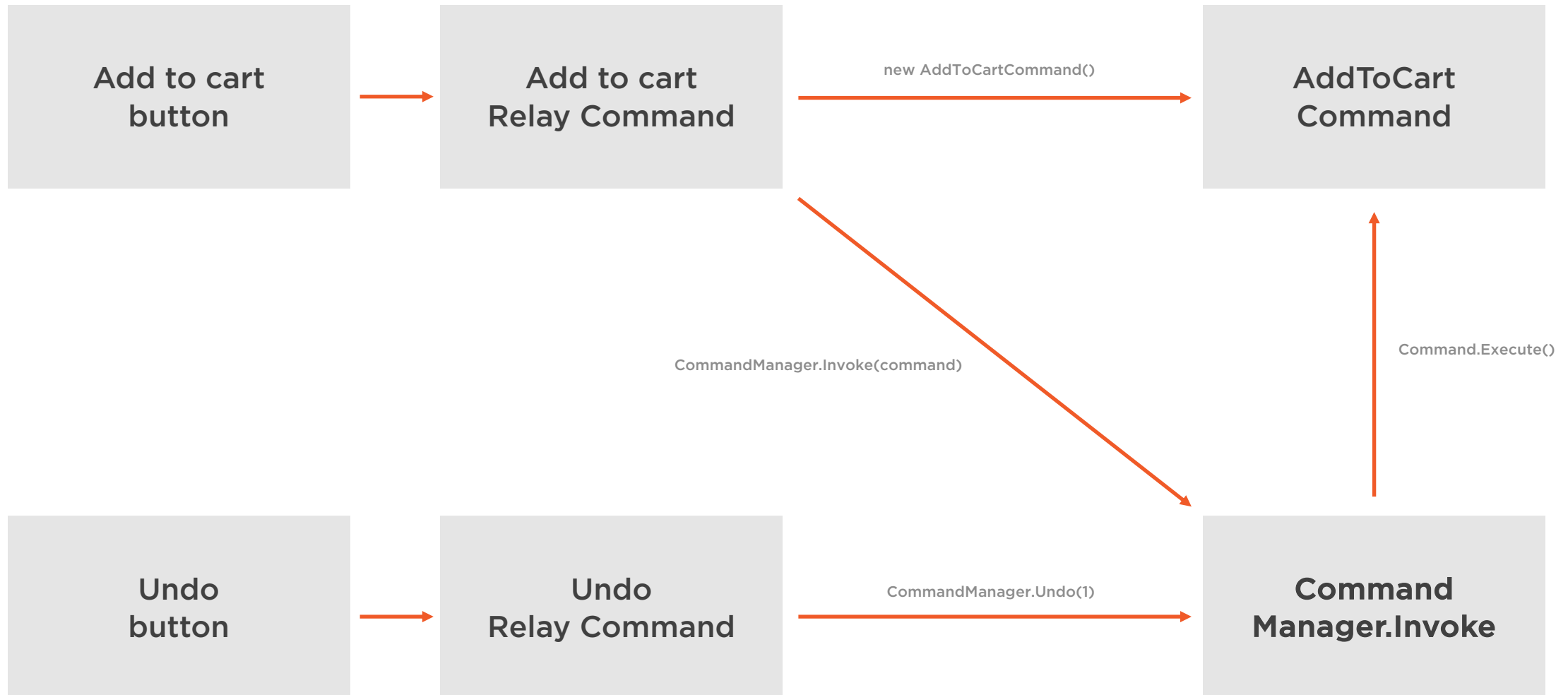
The Command Pattern in Action



Introducing the command
pattern will add complexity



Introducing Redo Functionality



Summary



The command pattern characteristics

What a command is

Understand why and how it can make a crucial part of the application more robust

Allows for separation of concern

Identifying existing implementations and adaptations

Could add unnecessary complexity

