

Use Cases: Give More to Get More

David Gelperin
ClearSpecs Enterprises
dave@clearspecs.com

ClearSpecs
Education



What's the Problem?

- ◆ Awkward, complex, and missing functions
- ◆ User-surly interfaces
- ◆ Common functions -- slow and unreliable
- ◆ Lots of rework in these problem areas
- ◆ Customers living with deformed systems

ClearSpecs
Education

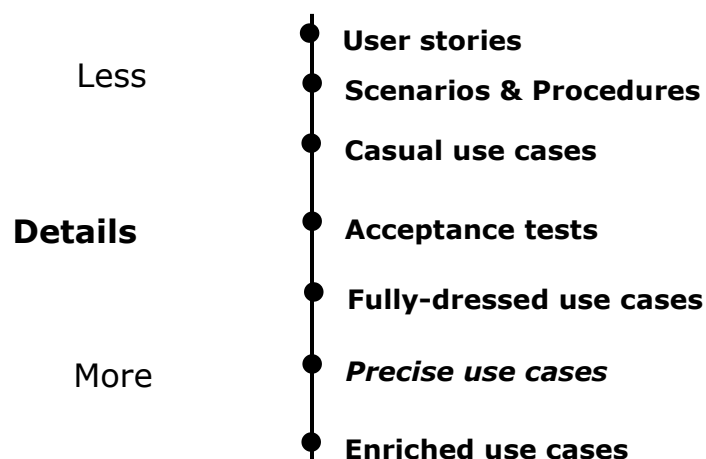


What's the Solution?

- ◆ **See** (& Analyze) **Usage**
- ◆ Model usage with
 - user stories
 - usage scenarios
 - acceptance tests (early)
 - **use cases**
- ◆ Copy or employ design masters
 - function design
 - interface design

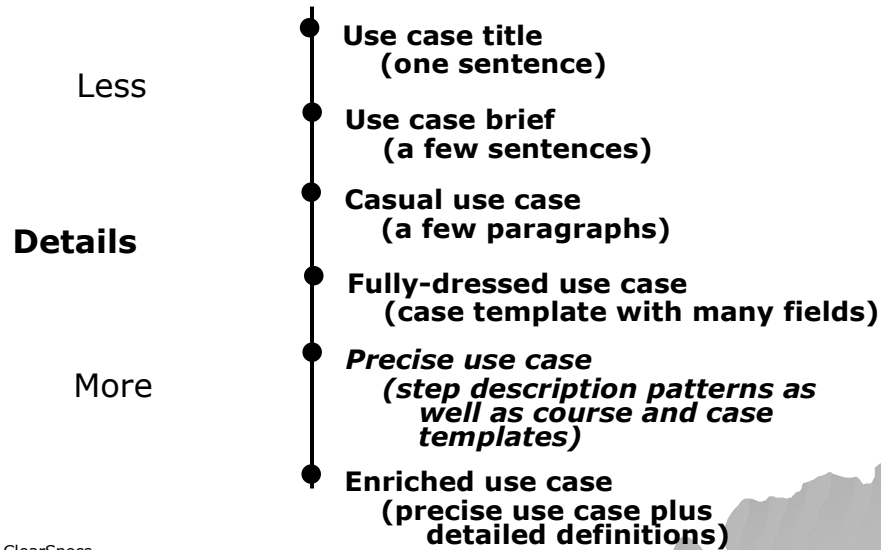
ClearSpecs
Education

Spectrum of Usage Models



ClearSpecs
Education

Spectrum of Use Case Details



Expose Issues Early

- ◆ Give more details
- ◆ Get more insight early

Put **more critical details**
into your use cases

Use Cases Describe:

- ◆ **Goal-directed interactions** between inter-actors and the system (e.g. book a reservation, buy a stock, pay a bill) under various conditions
- ◆ Effective **use** and possible **misuse**
- ◆ **Requirements** for interactive functionality **in context**
- ◆ **Test scenarios** for interactive functionality

ClearSpecs
Education

Use Cases Shouldn't Describe

- ◆ Details of interface design
- ◆ How the system does its work
- ◆ System architecture
- ◆ Processing Platforms

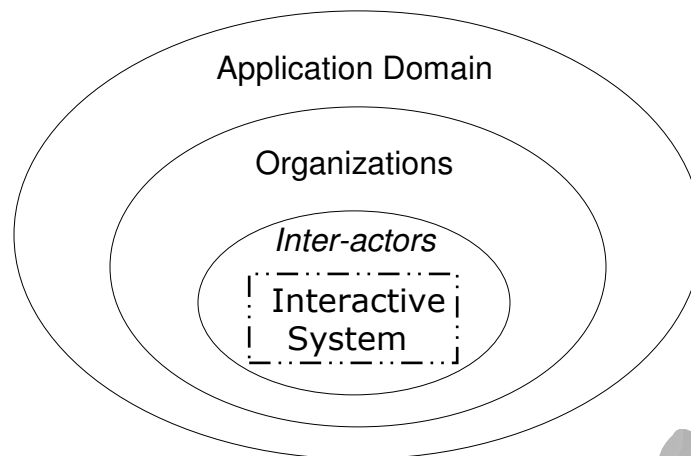
ClearSpecs
Education

Use Case Modeling Explores:

- ◆ Inter-actor population
- ◆ Inter-actor goals
- ◆ System scope
- ◆ Usage scenarios
- ◆ Misuse scenarios

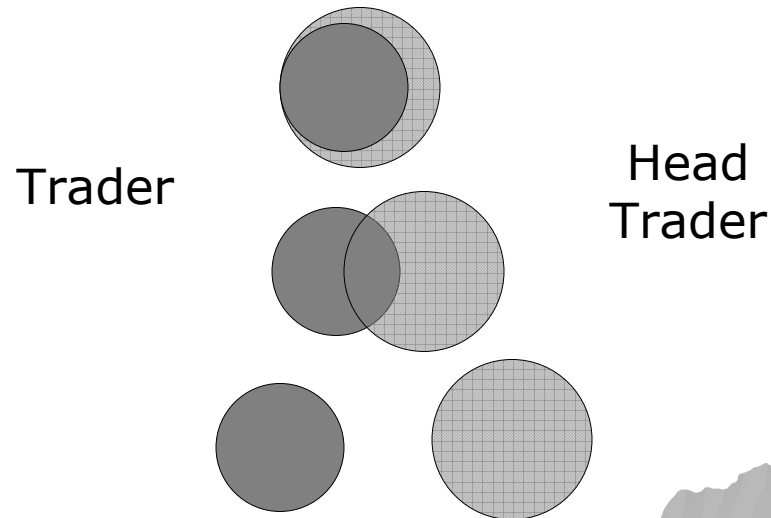
ClearSpecs
Education

Environment of an Interactive System



ClearSpecs
Education

Overlap of Inter-Actor Roles



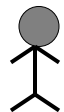
ClearSpecs
Education

Roles

- ◆ **Complete Role:** Actual position responsible for specific actions on specific objects to meet enterprise objectives e.g., sales associate
- ◆ **Partial Role:** Abstract position covering an overlapping portion of multiple complete roles e.g., return approver

ClearSpecs
Education

Who's Who in Use Cases



◆ **Complete Roles**



◆ **Partial Roles**

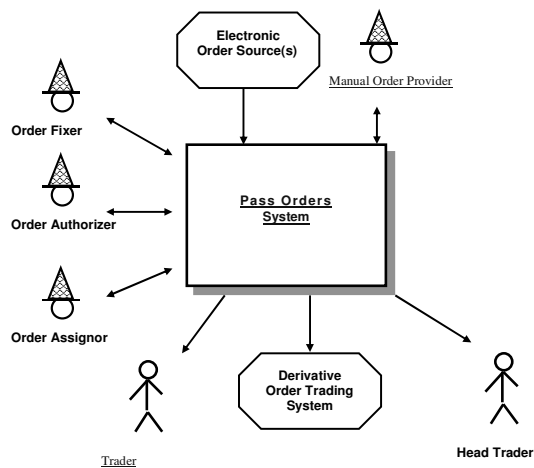


◆ **Actors:** People or specific systems playing one or more roles

◆ **Inter-actors:** Roles or actors

ClearSpecs
Education

Sample Population Diagram



ClearSpecs
Education

Building a Suite of Use Cases

1. **Identify the interactive system, its boundaries, & the functions to be modeled**
2. **Identify inter-actors, their responsibilities, & relationships**
3. **Identify goals of primary inter-actors**
4. **Identify domain and system entities (e.g., an order) associated with goals**
5. **Develop use cases for critical goals**
6. **Factor *common subgoals* into their own cases and *similar cases* into parameterized cases**
7. **Organize the suite**

ClearSpecs
Education

Elements of a Precise Use Case

- ◆ **Id & Title (goal)**
- ◆ **Risk Factors**
- ◆ **Case Conditions**
- ◆ **Inter-actors**
- ◆ **Basic and Alternative Courses**
- ◆ **Triggers**
- ◆ **<other attributes such as source, assumptions, cost, priority, status>**

ClearSpecs
Education

Elements of a Course

- ◆ **Id, type, & title**
- ◆ **Course steps**
- ◆ **Course conditions**
 - constant, pre, during, and post
- ◆ **Other attributes**
 - e.g. probability of selecting the course

ClearSpecs
Education

Course Conditions

- ◆ **Constant condition**
 - TRUE at the beginning, during, and end
- ◆ **Pre-condition**
 - TRUE at the beginning, but undefined or FALSE at the end
- ◆ **During condition**
 - TRUE along a path, but initially undefined at the beginning and end
- ◆ **Post-condition**
 - TRUE at the end, but FALSE or undefined at the beginning

ClearSpecs
Education

Precise Use Case fragment 1 of 4

Case ID & Title:

UC307: Get Seat on Reserved Flight

Risk Factors:

Frequency: 0 to 2 times for each reservation

Impact of failure:

likely case – **low**, open seating is a workaround

worst case – **medium**, open seating in a plane
with expensive seats may anger some
important passengers

ClearSpecs
Education

Precise Use Case fragment 2 of 4

Case Conditions:

Constants

None

Preconditions

Reservation system is active

Customer has access to system

ClearSpecs
Education

Precise Use Case fragment 3 of 4

Basic Course 1 of 2:

Customer	Web-based Airline Res System
1. requests seat assignment	2. requests a reservation locator
3. provides a (corrected) res locator alternative	4. searches for reservation
Until (res located or all res locator strategies tried), inter-actors repeat 3 to 4	
	5. offers seating alternatives, unless a. res not found or b. seat previously assigned or c. no seats are available or d. no seats are assignable <i>Constants</i> -- For passenger & flight, a reservation can be located <i>Preconditions</i> -- For flight, some seats are assignable

ClearSpecs
Education

Precise Use Case fragment 4 of 4

Basic Course 2 of 2:

Customer	Web-based Airline Res System
6. selects seating alternative	7. assigns selected seat unless a. no seating alternative selected <i>Post-conditions</i> -- For reservation, selected seat is assigned
	8. If (seat previously assigned) returns previous seat to inventory <i>Post-conditions</i> -- For flight, previously assigned seat is available Endif
	9. confirms assignment SUCCESS EXIT

ClearSpecs
Education

Alternative Courses

- ◆ In basic or alternative courses, alternative actions may be possible **at or between** steps.
- ◆ Some alternative courses change the outcome of their containing courses (e.g., failure exits), while others do not (e.g., print screen).

ClearSpecs
Education

Types of Alternatives

- ◆ **Exception handlers**
 - inter-actor – no satisfactory choice
 - system – reservation not found
- ◆ **Required selections**
 - inter-actor – paying with credit card, cash or not paying
 - system – sending confirmation by email or text message
- ◆ **Conditional options**
 - inter-actor – providing discount information
 - system – returning seat to inventory
- ◆ **Inter-actor invoked interrupts**
 - generic subgoal cases (e.g., help, save, print)
 - application-specific subgoal cases
 - any goal-level use case

ClearSpecs
Education

Use Cases Vary in

Scope of system –

org vs. dept vs. app/product vs. component

User goal level –

goal vs. subgoal (generic or application-specific)

Case form –

diagram vs. text vs. both

Text form –

free-form vs. structured

Course layout –

1, 2, or 3 columns

Volume of detail –

casual vs. fully-dressed vs. precise

ClearSpecs
Education

Expose Issues Early

- ◆ Give more details
- ◆ Get more insight early

More info about Precise Use Cases
at www.clearspecs.com

ClearSpecs
Education