

Quality Attribute Scenarios

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Overview

- What is Quality?
- Quality Attributes
- Trade-offs between Attributes
- Quality Attribute Scenarios
 - The Basics
 - Workshop
 - Prioritisation
- What effect does this have on design?
- Conclusion

What is Quality?

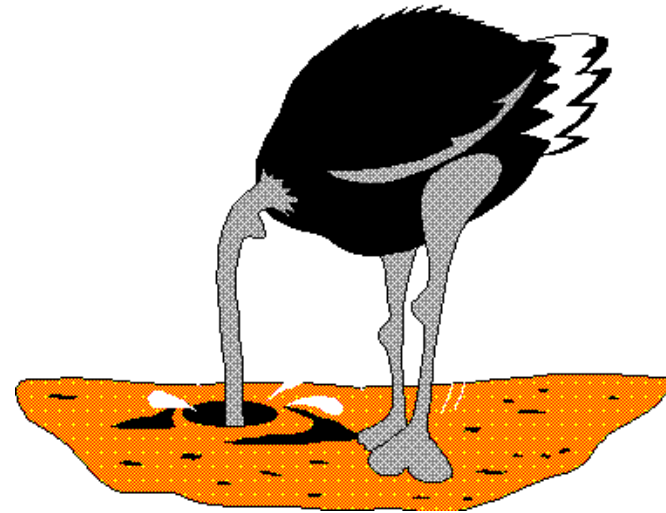
- What is it not?
- How does it relate to non-functional requirements?
- Eye of the beholder

Quality Attributes

- Availability
- Modifiability
- Security
- Performance
- Testability
- Usability
- Any others?

Quality Attributes

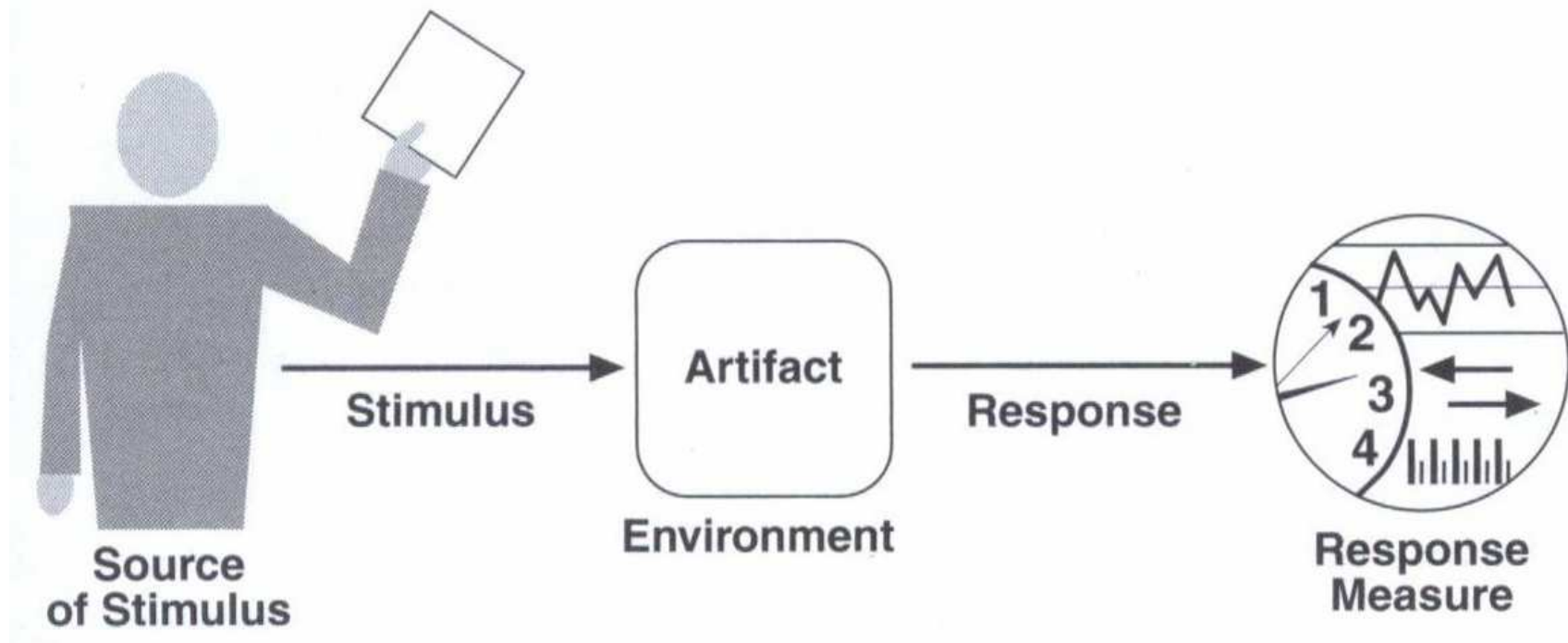
- Why are they important?
 - The customer wants “quality”



Trade-offs between Attributes

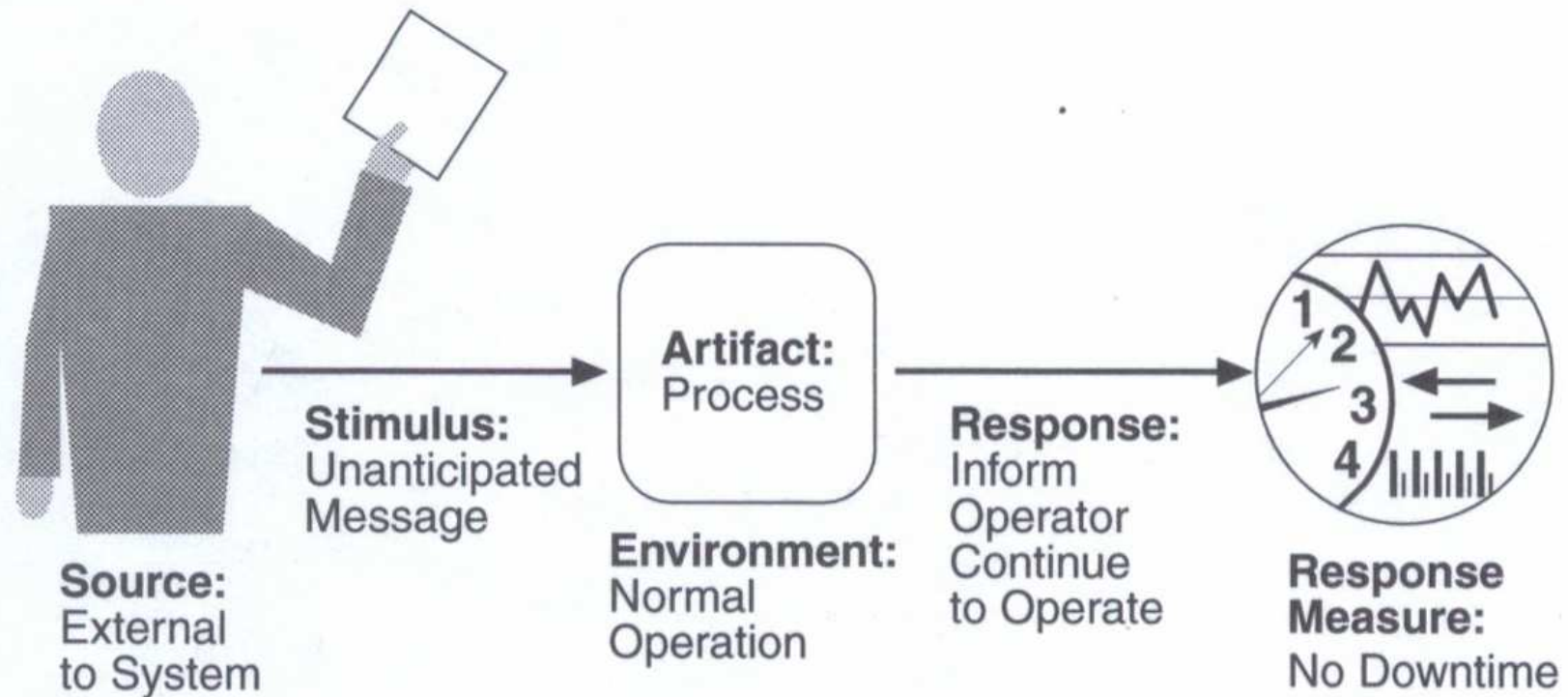
- They're all good – we want them all
- Where do they conflict?
 - security vs usability
 - availability vs performance

Quality Attribute Scenarios



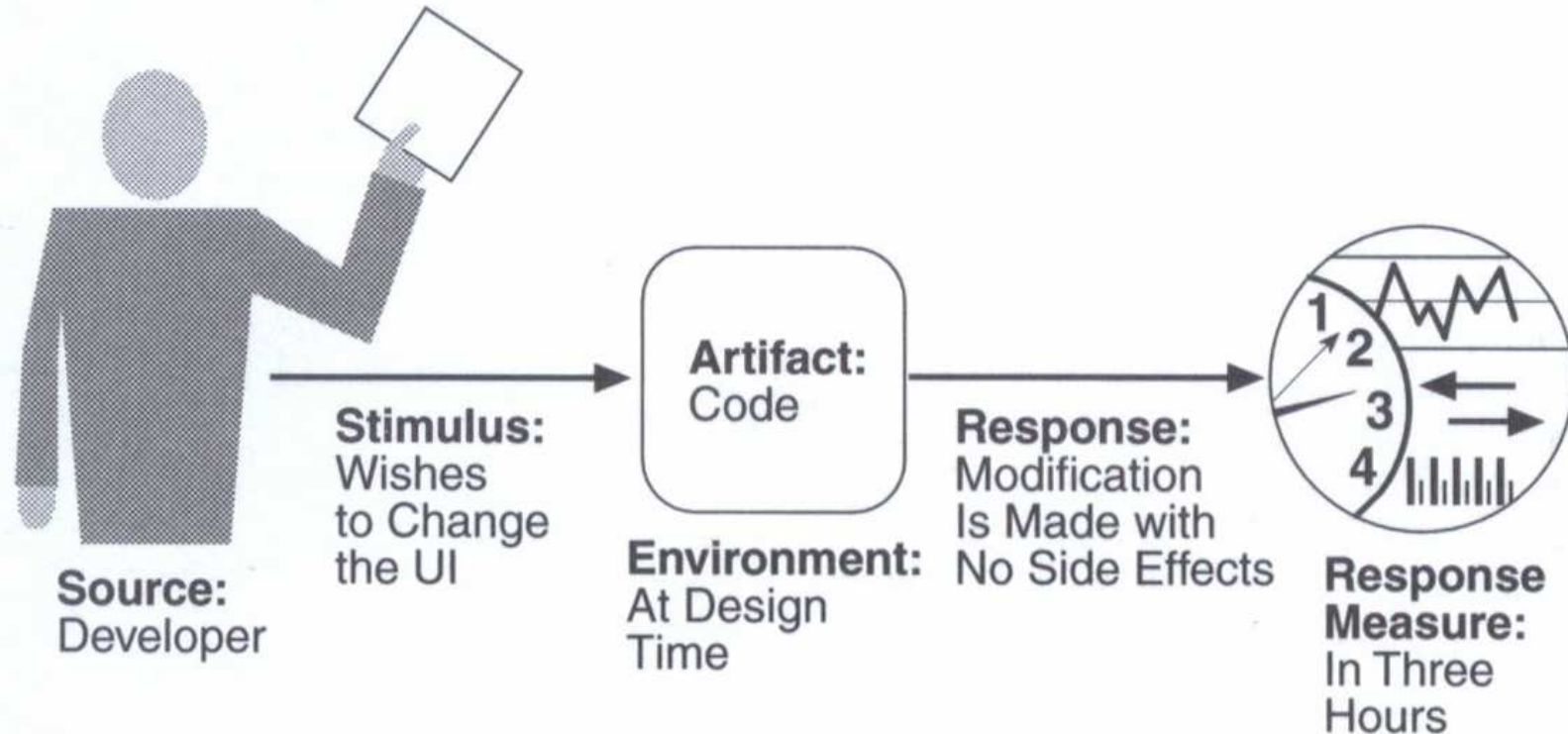
Source: Bass, et al
Software Architecture in Practice

Example Scenarios



Sample availability scenario. An unanticipated external message is received by a process during normal operation. The process informs the operator of the receipt of the message and the system continues to operate with no downtime.

Example Scenarios



Sample modifiability scenario. A developer wishes to change the UI code at design time; modification is made with no side effects in three hours.

Workshop

- Six groups, one per attribute category
- Example project: The Karoo Array Telescope
- Generate at least two scenarios each
- We'll get together and prioritise

Impact on Design

- Weinberg and Schulman's experiment
 - people do what you ask them to do
- Architectural Tactics and Patterns
 - designed to achieve one or more quality attribute

Conclusion

- Quality Attributes
 - six categories
- Components of a quality attribute scenario
 - seven components
- Some practice at generating them
- Impact on design
- Questions and Answers