

Non Functional Requirements (NFR)

A Framework in Action

Group 3 - RE II - HS14

Agenda

- 1) How our topic fits to session's topic
- 2) Introduction to NFR Framework
- 3) Process of NFR Framework
- 4) Discussion

1. How our topic fits

- Topic 6 is about models
- We show one model that helps with NFRs

2. Introduction NFR Framework

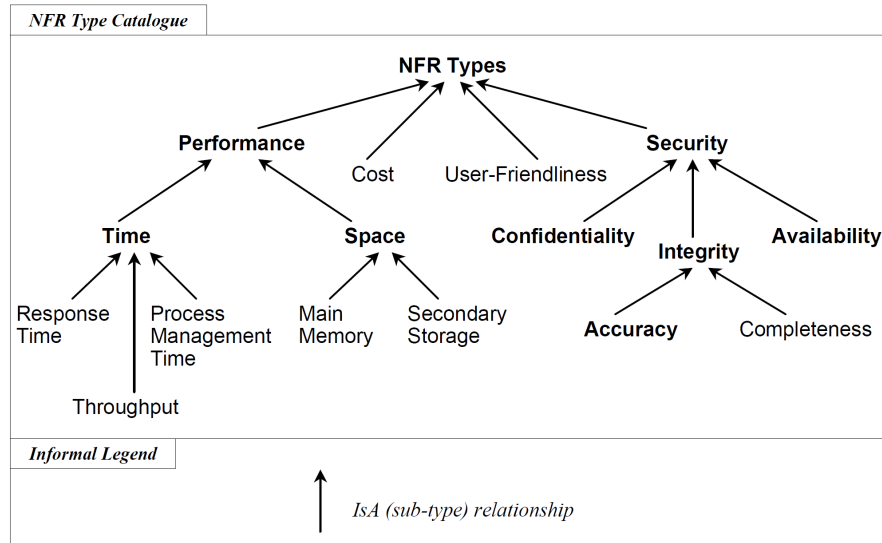
- Non functional requirements (NFR) → important implications for the security, performance, accuracy, costs and other aspects of a system → as crucial as functional req. for success of a system
- NFR are often not systematic nor documented
- Goal of the NFR Framework: Uses NFR to drive the overall design process
- Purpose of framework → put NFR in developer's mind!
 - softgoal interdependencies in focus of framework
 - organized body of design knowledge

3. Process of NFR Framework

- 1) Acquiring & Cataloging NFR knowledge
- 2) Identifying NFRs
- 3) Decomposing NFR softgoals
- 4) Dealing with properties
- 5) Identifying possible operationalizations
- 6) Dealing with implicit interdependencies among softgoals
- 7) Recording Design Rationale
- 8) Selecting among alternatives
- 9) Evaluating the impact of decisions

3a. Acquiring & Cataloging NFR Knowledge

- Acquire information about domain and the system developed
- Catalogue of knowledge = key for NFR Framework



3b. Identifying NFRs & Decomposition

- First, declaration of initial softgoals is handled by identifying the main NFR the system should meet
- these NFRs are treated as softgoals to be achieved by specific development techniques

→ NFR framework also considers interdependencies among softgoals

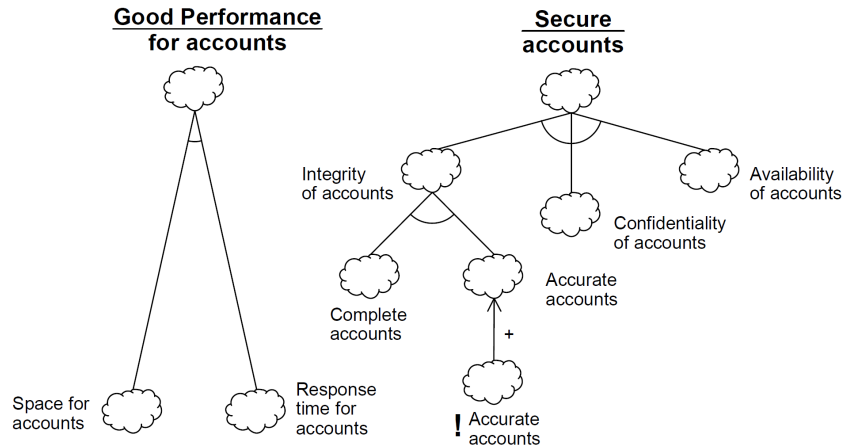
- From the identified softgoals, the developer will decompose the initial softgoals into more specific subgoals

→ e.g. security of a system: Integrity of credit accounts, availability of accounts etc.

- interdependencies have a different contribution type (e.g. AND type, OR type)

3c. Priorities

- Softgoal interdependency graphs can be really complex → prioritize to get an overview
- critical vs. dominant



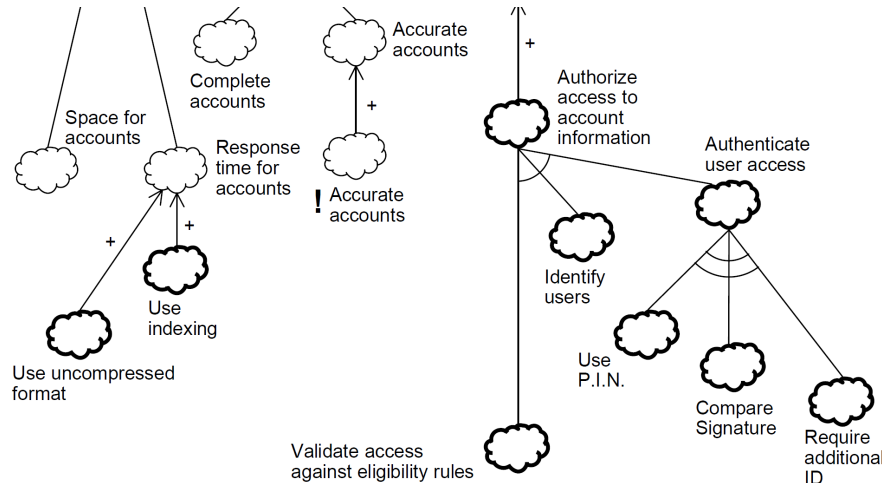
Informal Legend



Priority softgoal

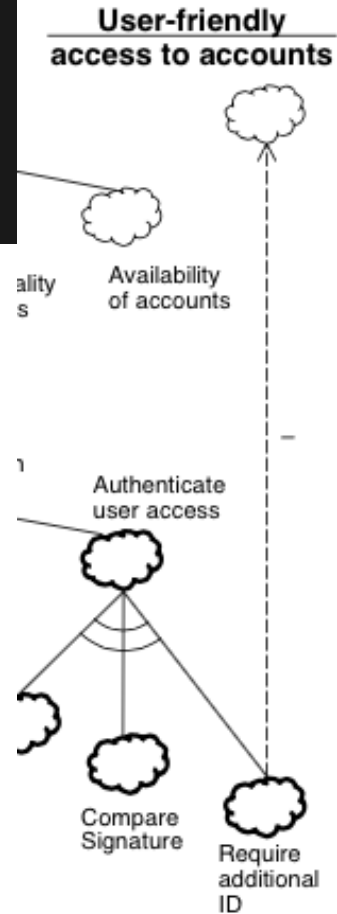
3d. Identification of Operationalizations

- Development techniques = operationalizations → provide means for accomplishing NFRs
- Operationalizations → need a proper specification level to realize the softgoals!



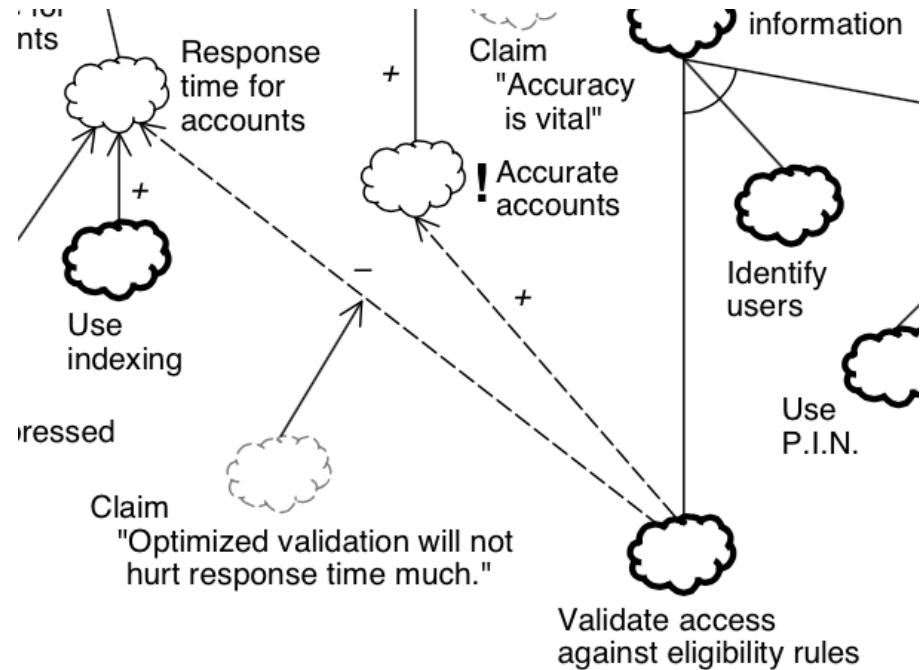
3e. Implicit interdependencies

- detected by using catalogues of relationships among softgoals
- can be positive or negative
- may add new softgoals



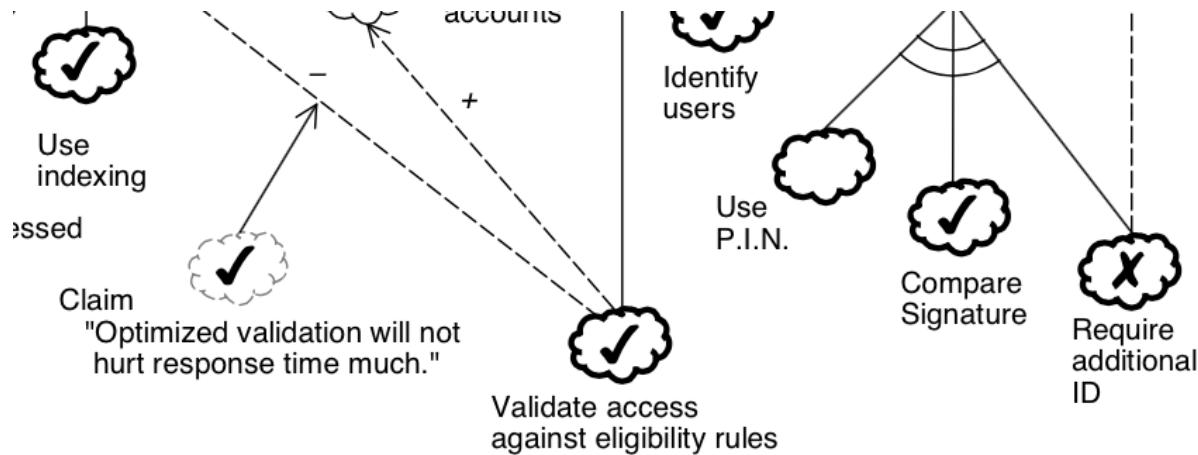
3f. Design Rationale

- claims



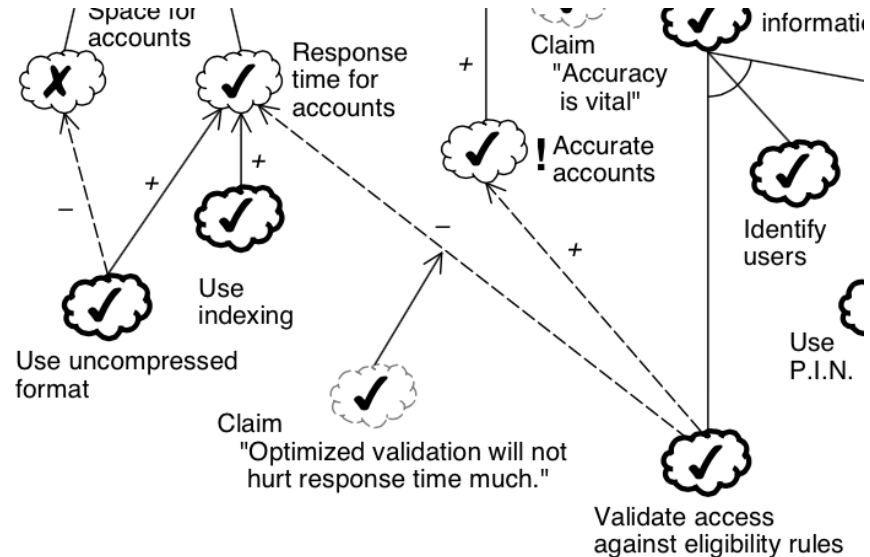
3g. Selecting from Alternatives

- Chose from possible operationalizations
- Select design rationales

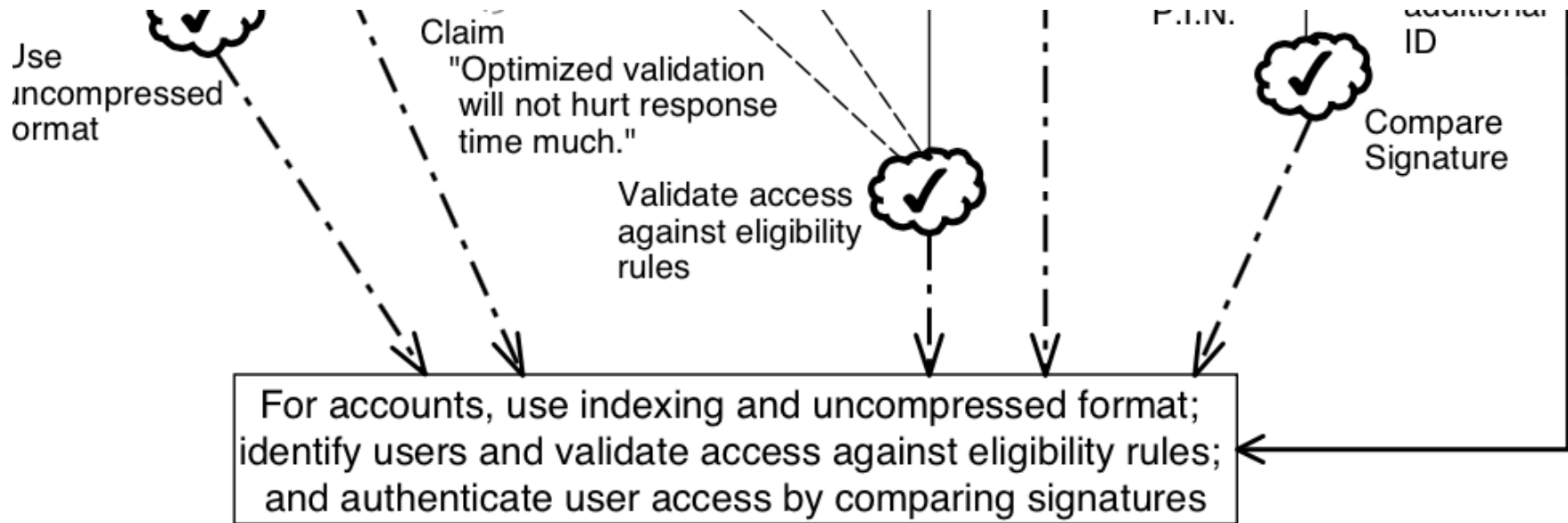


3h. Impact of Decisions

- Satisficing : Is chosen alternative “good enough”?
- Bottom-up
- x : denied softgoals
- Not just ✓ and x but also shadings



Interlude: Relate to Funct. Requirement



3i. Catalogues

- NFR type catalogue
- Method catalogue:
 - How to operationalise NFR softgoals
- Correlation rule catalogue : Seen before
 - Methods and their impact on NFR softgoals

Discussion

- Machado's desirable meta-model qualities:
How do they relate to this model?
- Disambiguity, formal analysis, analysis by execution, control over complexity, model continuity