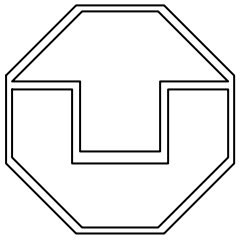

Softwaretechnologie

INTERSHOP™

Modeling variability with UML

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Contents

1. Feature modeling

- Known modeling approaches
- Transition to UML

2. Modeling variability in SW models

- Concept of “Variation points”
- Vp’s in UML models
- Optional elements

Feature modeling revisited

Feature = typical characteristic of a system or a group of systems.

Modeling approaches (not complete):

- FODA
- Generative Programming
- FORM
- Bosch et al

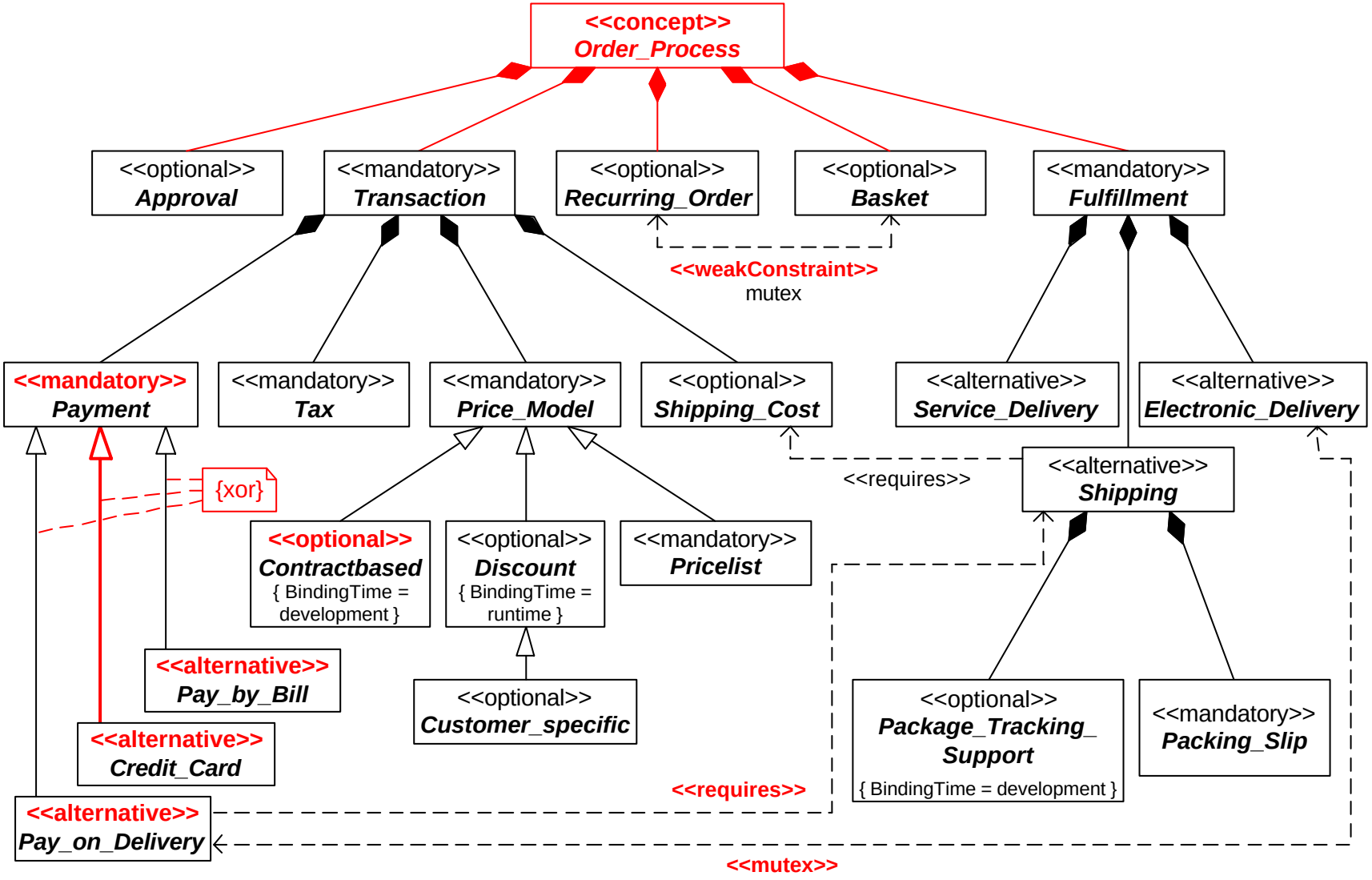
Minimal requirements:

- Tree structure of composition relationships
- Composition rules: mutex, requires
- Feature type: mandatory, optional, (xor-) alternative

Additions:

- Generalization of features
- Or-features, External features
- Weak constraints

Feature diagrams in UML



Feature modeling in UML: Results

Usability ...

- Description of relevant properties of products
- Management of variabilities
- Communication with marketing, product management

... in UML:

- Standardizable as UML profile
- Enhancing feature-modeling concepts: UML constraints, Model management
- Integration with system models (✍ traceability)
- Reuses existing tools

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Modeling variability

- Several understandings of „Variation point“

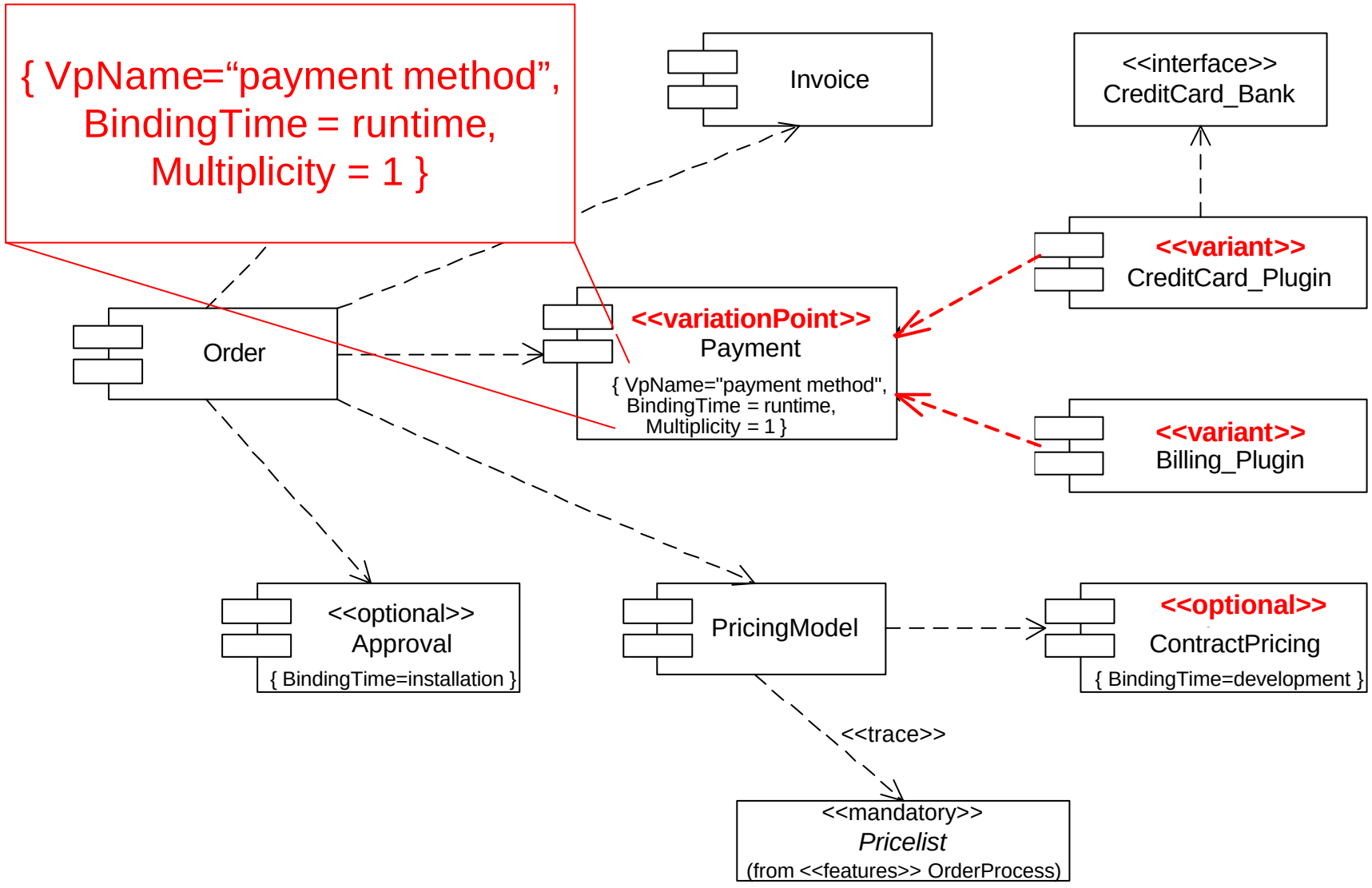
Hot spots:

- Variation point = set of alternatives
- Optional elements

Relations between hot spots:

- Constraints: mutex, requires
- Evolutionary constraints

Variabilities in UML



Vps + OptElems: Conclusion

- **Description of generic models**
- **Integrated in system analysis & design**
- ***Traceability to* other models and the *feature model***

- **Possible development of generators**

Finish ?

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http://www-st.inf.tu-dresden.de/~mc3/varUML