Design choices in the business tier

Model Driven Architecture

To develop an enterprise system using an MDA approach to model-driven development, following steps can be carried out:

Platform Independent Model

1. • Define PIM data model and use cases.

Platform specific model

2. • Derive PSM data model (eg, for relational database implementation) by applying model transformations to PIM.

3. • Derive architecture and implementation of system, using PIM constraints to derive operation and transaction code.

Together, these steps ensure that system satisfies its specification and is correct by construction: specification properties remain true (possibly in a rewritten form) after model transformations, and code generation step produces code designed to maintain these properties at all observable time points in execution of system.

Constraints which are class invariants define data validity checks, carried out by entity bean derived from the class: checks determine if invariants hold for particular data (eg, data received from an HTML form used to create a new instance of class). Can also be used to define transaction which modifies dependent attributes when an attribute changes value.

Constraints linking data of two different classes can be used to define transactions involving operations of entity beans of both classes. Any change to data of one entity may require change to data of other, in order to maintain constraint. Updates should take place within uninterruptible transaction, so constraint is true at all observable time points of system.

Constraints also influence architectural decisions: if a constraint links two classes, would normally implement use cases for both classes in same session bean.