

BON: Seamless, Reversible, Contract-Based Analysis and Design

Kim Walden
Enea Data, Sweden

Software reuse on a broad scale is generally recognized as the major potential of object technology. The BON method is focused on two software development principles, which play crucial roles in attaining this goal.

First, analysis and design must serve not only as help to produce an initial version of a software product, but as major support during its full lifecycle. It must be straightforward to update the high-level models when changes are performed during implementation and maintenance, and still keep full consistency. This requires reversibility, that is seamless mapping in both directions between successive models.

Second, reusable components need to be precisely specified. To avoid ambiguity, we need more than the usual set of vague natural language comments. Each software module must carry a contract specifying exactly what can be expected from its services, and what must be taken care of by the clients.

The tutorial gives an overview of the BON method, which is centered around seamlessness, reversibility, and software contracting. As a consequence, the method uses a consistent set of concepts and notations throughout the software lifecycle, thus avoiding the impedance mismatches of traditional approaches such as ER-modeling or finite state machines. Besides the principles above, typed interface descriptions, scalability, and space economy are stressed.

A small case study is used to explain the basic concepts and systematic tasks of the BON development process.

Bio

Kim Walden was on the team developing the DEC Simula compiler in the early 1970s. He has more than 20 years experience with industrial software development, research, consultancy, and education. Kim Walden is the co-author of the book *Seamless Object-Oriented Software Architecture*.