

Active Knowledge: on foundations of a uniform fine-grained object-oriented approach.

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A short description of the Presentation to the ACM Sigmod Moscow Chapter.

The presentation describes the process of creation, discusses the general ideology and gives examples of applications of Active Knowledge, a uniform fine-grained object approach. To a certain extent, Active Knowledge extends the fine-grained object-oriented delegation-based framework. Delegation-based frameworks refrain from the problem domain analysis in terms of classes/instances and message passing/method activation; on the contrary, the focus is on the objects, which are endowed with the individual behavior and properties. If a new object needs to be created with the structure similar to an already existing object, the latter can become the prototype of the object being created, which can also share some resources with its prototype, establishing the "delegation" relationship between the two objects.

The advantages of the delegation-based object approach become most apparent if the approach is bundled with the fine-grained evaluation paradigm. In this case, the delegation relationships become the channels of the real-time communications between the objects, and they will coincide with the structure of the spawned calculation graph.

Due to its differences from the traditional object oriented (OO) framework, it is quite challenging to create a software system that will not only provide the object habitat, but will also implement the fine-grained delegation-based object approach. For this, OO methodology must be altered somewhat, introducing essential uniformity and dynamism.

Thus, Active Knowledge is a holistic approach, unifying system analysis methodology, presentation methods of the analysis outcome and the evaluation framework, based on the principles of the fine-grained delegation-based object approach. This way, it is possible to achieve uniformity of the whole life-cycle of a software system.

The reference in Russian is available at:

<http://synthesis.ipi.ac.ru/sigmod/seminar/s19960328>.