

# Design and Implementation of a Framework for Small Distributed Applications

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**Abstract.** Computing on large data sets is an important part of computer science, a lot of important information is inherently difficult to compress and, additionally, the resources to process these amounts of data are usually expensive. Non-Profit Organizations, educational institutions and such must find ways to handle their processing requirements while keeping costs down. Several tools exist to accomplish this by means of some form of distributed computing.

This paper provides overview of the design and ongoing implementation of an abstract framework to implement distributed algorithms independent of said tools, underlying communication systems or problem-specific concerns. We consider this abstraction is necessary to maximize exploitation of available resources, a factor likely to change through time both in quantity and type.

The selected approach is a layered system containing application, management and distribution layers combining server-client and Divide & Conquer concepts to achieve high cohesion and low coupling while upholding the Open-Closed Principle. The framework consists of fixed and variable parts, where the latter can be adapted to fit problem requirements by providing layer-specific details while interoperating with the static components and the rest of the system.