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## ALFA: The new ALICE-FAIR software framework

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The commonalities between the ALICE and FAIR experiments and their computing requirements lead to the development of large parts of a common software framework in an experiment independent way. The FairRoot project has already shown the feasibility of such an approach for the FAIR experiments and extending it beyond FAIR to experiments at other facilities. The ALFA framework is a joint development between ALICE Online-Offline (O2) and FairRoot teams.

ALFA is designed as a flexible, elastic system, which balances reliability and ease of development with performance using multi-processing and multi-threading. A message-based approach has been adopted; such an approach will support the use of the software on different hardware platforms, including heterogeneous systems. Each process in ALFA assumes limited communication and reliance on other processes. Such a design will add horizontal scaling (multiple processes) to “vertical scaling” provided by multiple threads to meet computing and throughput demands.

ALFA does not dictate any application protocols. Potentially, any content-based processor or any source can change the application protocol. The framework supports different serialization standards for data exchange between different hardware and software languages. The concept and design of this new framework as well as the already implemented set of utilities and interfaces will be presented.

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