SODALITE is the new member of the Heterogeneity Alliance

Author: Joao Pita Costa (XLAB)

In recent years, the global market has seen a tremendous rise in utility computing, which serves as the back-end for practically any new technology, methodology or application-level advancement, from healthcare to aerospace. Many trends contribute to the impact of utility computing, including heterogeneity of used resources and absence of vendor lock-in In particular, the technological advantage of a heterogeneous approach and its related challenges have been highlighted by some interesting European initiatives.

The Heterogeneity Alliance is a research network addressing the heterogeneity challenges focused on heterogeneous hardware and software, enabling a new wave of development and execution tools for next-generation applications. Its main goal is to join the efforts of its members relying on their common interest in the development of future technologies and tools to advance, and take full advantage of computing and applications using heterogeneous hardware. The reference architecture is exhibited in Figure 1. SODALITE is part of this Alliance since October 9, 2019, and its profile is available online at http://heterogeneityalliance.eu/content/sodalite. This initiative can be a good source for fruitful collaborations with experts in related domains. (examples are, the Barcelona Supercomputing Center, the H2020 E2Data project, Atos, InAccel, or the University of Manchester).

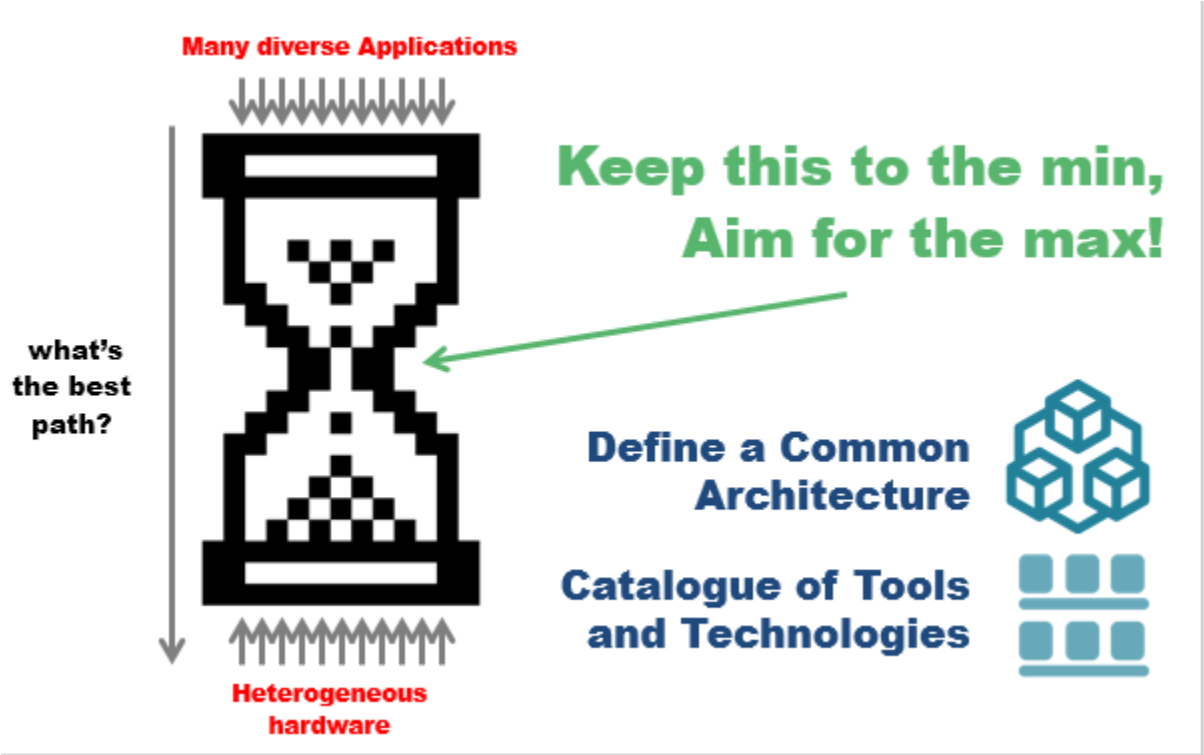

Figure 1 - The reference architecture of the Heterogeneity Alliance (source: HA Ref. Architecture, 2018)

Being a member of the Alliance, SODALITE expects to get to know about interesting events, to attend them, to exchange knowledge with the other members and to foster a network for future collaborations

with other projects, in which SODALITE's partners will take part in the future. Most important, the SODALITE Consortium expects it will receive feedback on its own scientific and business activity, particularly on how it is addressing heterogeneity challenges. SODALITE expects to contribute to the Alliance with its own work on heterogeneity, and also with potential liaisons contributing to dissemination activities such as workshop(s) participation, research papers, scientific magazines, and other academia channels.

In line with its main mission, the main interest of SODALITE with respect to heterogeneity concerns the large variety of computational environments we have available today. They are becoming more heterogeneous, with highly specific and optimised infrastructure focusing on particular tasks (e.g. accelerators/GPUs, configurable processors and non-x86 CPUs such as ARMv8). The management of this infrastructure is becoming quite cumbersome and, additionally, suboptimal, as the complexity of the environment surpasses the abilities of fixed management strategies. SODALITE provides application developers and infrastructure operators with the tools for management of heterogeneous applications on diverse infrastructure while focusing on performance, quality, manageability, and reliability of execution (see Figure 2 for an overall description of the main characteristics of the SODALITE solution).

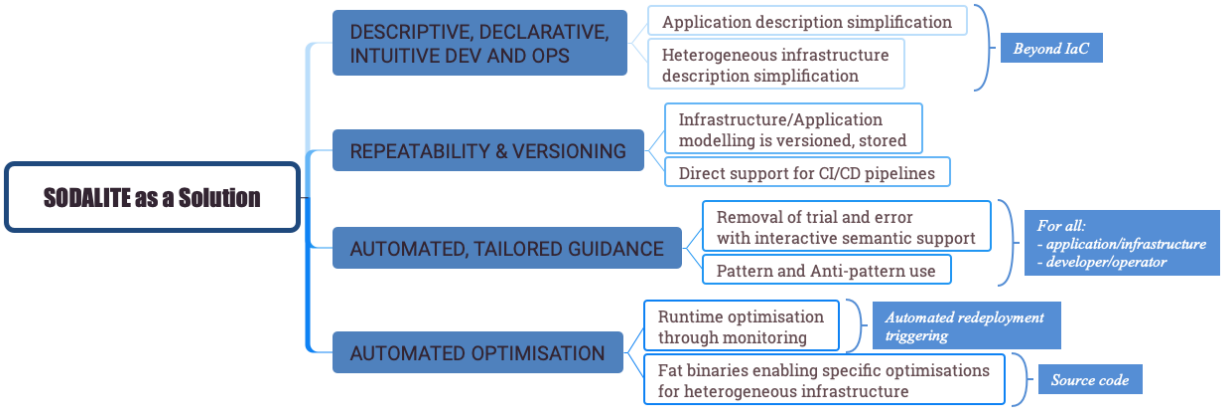

Figure 2 - The solution provided by SODALITE showing its heterogeneity nature.