Edge Twins HPC: Bringing Digital Twins to the Edge for mass Industry 4.0 applications

Description

Digital twins, along with the Internet of Things and Edge computing , are expected to play a decisive role in the nextdecade s industrial markets (Industry 4.0) enabling dramatic improvements in complex systems design and operation.However, this technology has not been yet widely implemented, since it requires the collaboration of experts in multiple fieldsand costly computational tools.The EdgeTwins HPC project brings a different approach that will extend digital twins to new market segments and users (i.e.SMEs). It aims to develop an open-source software tool (builder) to produce digital twins that run on the Edge. That is, theyare installed on the physical asset they represent, and operate in very constrained compute environments. This approachwill enable a new breed of novel real-time applications, from autonomous vehicles to small devices.The main objective of this FET Innovation Launchpad project is to evaluate the business feasibility of an open-source DigitalTwin builder software for Edge applications and develop and test a demonstrator (alpha) for one or more use casesidentified in the market analysis.To do so, the participants will leverage on the high-performance computing software stemming of the ExaQute FETProactive project. These assets will allow, using Reduced Order Modelling techniques, to model complex 4D simulations tolater extract the essential features of the solution so that similar results can be obtained at a vastly reduced computationalcost.

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