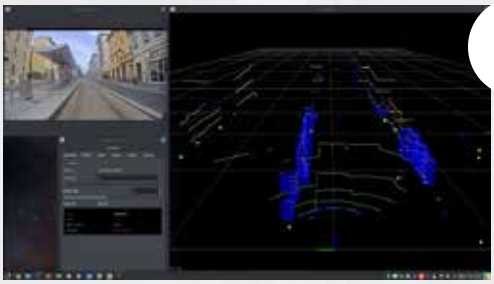
ELASTIC

A Software Architecture for Extreme-ScaLe Big-Data AnalyticS in Fog CompuTIng Ecosystems

The ELASTIC use-cases

The ELASTIC software architecture has been implemented in the smart city use-case of the tramway system in Florence. In order to evaluate the capabilities of the ELASTIC software architecture, three use-cases were identified:

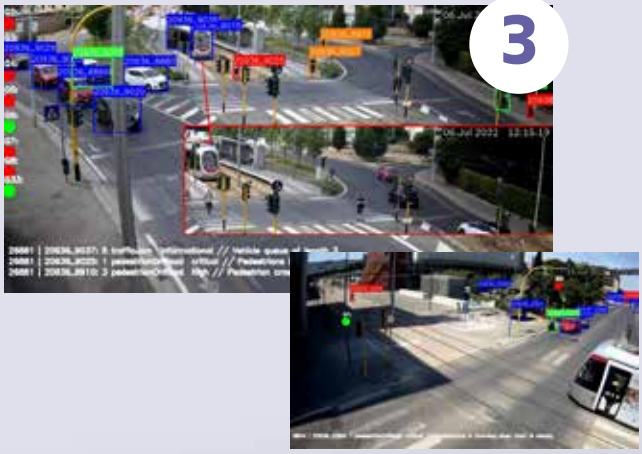


1

Next Generation Autonomous Positioning (NGAP) and Advanced Driving Assistant System (ADAS) to provide accurate information on the tram position and assist drivers in critical situations by informing of real-time obstacles enhancing the passengers' safety

2

Predictive maintenance, monitoring the rail track status to enabling the identification of changes in equipment behaviour that foreshadow failure



3

Interaction between the public and private transport in the city, to alert users and/or operators to identify critical situations (e.g., pedestrians crossing the rail tracks while the traffic light is red or the tram is approaching) and optimize local traffic regulation strategies (e.g., formation of vehicle queues in the intersection area).

The ELASTIC software architecture provides the necessary components and interfaces needed to develop the necessary advanced big data analytics methods for the ELASTIC use-cases, and distribute them over a heterogeneous compute continuum infrastructure composed of edge to cloud computing resources available across tramway vehicles, stations and depot.

Partners

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