

ICT, STREP

FERARI ICT-FP7-619491

Flexible Event pRocessing for big dAta aRchItectures

Collaborative Project

D 6.1

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03.02.2014 – 30.04.2014

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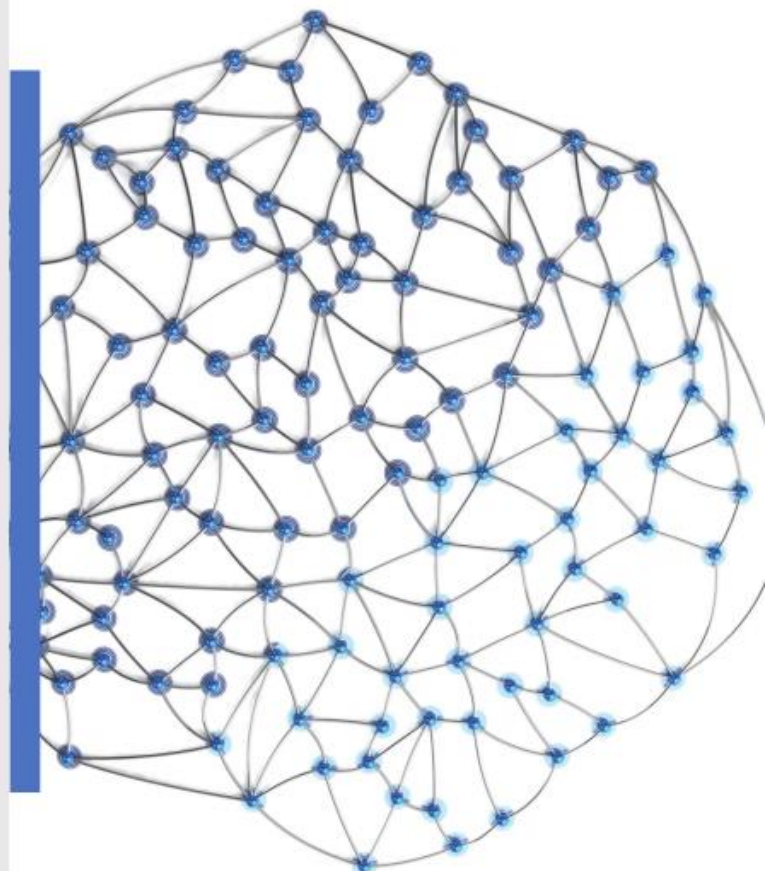
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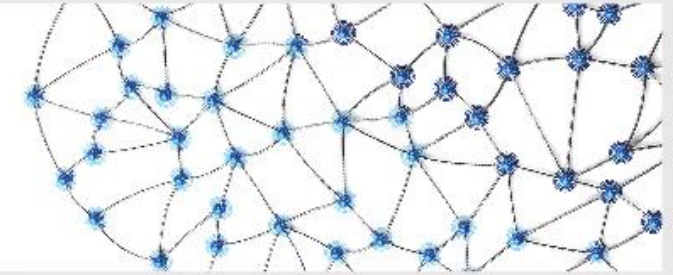
Flexible Event pRocessing for big dAtA aRchitectures

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Flexible Event pROcessing for big dATA aRchitectures - Ferari

Many of today's Big Data technologies were built on the tacit assumption of web-based systems processing human generated-data at Facebook or Google. Such data is typically unstructured and predominantly persistent. As a result, the focus to date has been on batch processing of Big Data stored in distributed file systems. However data volumes generated from Machine-to-Machine interactions (M2M) surpass by far the amount of data generated by humans.



Ferari vision

Ferari will enable leveraging recent advances in in-situ processing algorithms, which perform much of the processing at the source where the data is generated. Instead of transporting all the data to a data center for centralized storing and processing, the data is processed in place, and a centralized location is only required to coordinate the processing efforts, and to receive final results. The advantages of in-situ processing are especially important for M2M data, where any transportation of data is truly wasteful since there is no need to store the data.

In-situ processing is a crucial component for achieving truly large-scale and geographically distributed scalability: avoiding sending all the data to a centralized location for storage and processing simultaneously addresses both communication and computational scalability issues. By diminishing the need for large centralized infrastructures, huge data transfers, and the respective necessary energy, in-situ processing lowers the cost and environmental ramifications of Big Data stream processing systems by orders of magnitude. Similarly, huge acceleration is obtained in performing real-time knowledge extraction and monitoring



Ferari objectives

- Provide support for large scale services by making the sensor layer a first class citizen in Big Data architectures.
- The goal is to bring stream processing much closer to the business world by extending simple stream processing of numeric or textual data to the much more powerful realm of Complex Event Processing (CEP).
- Provide support for integrating machine learning tasks in the architecture.

- Provide support for flexible and adaptive analytics workflows.
- Exemplify the potential of the new architecture in the telecommunication and the cloud domain.

Scenarios

To show the potential of the approach, FERARI has selected two scenarios in challenging, high-impact areas of industry, where communication bottlenecks currently are severe limiting factors.

These scenarios are

- (1) the analysis of mobile phone fraud in telecommunication networks and
- (2) real-time health monitoring in clouds and large data centers as a scenario where already today high volume of data is severely limiting the optimization and monitoring of IT systems.

