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A Distributed Approach to Compliance Monitoring of Business Process Event Streams

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Abstract

In recent years, the significant advantages brought to business processes by process mining account for its evolution as a major concern in both industrial and academic research. In particular, increasing attention has been turned to compliance monitoring as a way to identify when a sequence of events deviates from the expected behaviour. As we are entering the IoT era, an increasing variety of smart objects can be introduced in business processes (e.g., tags to track products in a plant, smartphones and badge swiping to draw the activities of customers and employees in a shopping center, etc.). All these objects produce large volumes of log data in the form of streams, which need to be run-time analysed to extract further knowledge about the underlying business process and to identify unexpected, non-conforming events.

Albeit rather straightforward on a small log file, compliance verification techniques may show poor performances when dealing with big data and streams, thus calling for scalable approaches.

This work investigates the possibility of spreading the compliance monitoring task over a network of computing nodes, achieving the desired scalability. The monitor is realised through the existing SCIFF framework for compliance checking, which provides a high level logic-based language for expressing the properties to be monitored and nicely supports the partitioning

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