

CFA: towards complex queries in CEP

Although research in Complex Event Processing (CEP) has addressed a variety of event types which include sequencing through time, there are a number of complex event types yet to be addressed by these systems. For many advanced stream applications we have to predict high-level events likely to result from specific sets of low-level factors, identify the cause of these events, and check for the independent nature between events and many such complex events. The more expressive the CEP system is, the more complex the events addressed can be. The expressive power of any such system lies in its query processing model.

We propose a Query Processing Model for Complex Events. The model is based on a novel Cellular Finite Automata which is a hybrid of Cellular Automata and Finite Automata. This system will be able to identify complex relationships between events like Aggregation, Causality, and Independence which are not recognized by the traditional Non Deterministic Finite Automata (NFA) based systems. We prototype our system showing the efficacy of our approach and discuss the design, implementation and benefits with respect to the traditional NFA based systems.