Applying Event-Driven Business Process Management in the Entertainment Domain
(Extended Abstract for the DEBS 2009 PhD Workshop)
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ABSTRACT
Being a part of the project proposal for EU/FP7, “DoReMoPat” (“Domain Specific Reference Models for Complex Event Processing Patterns”) [2], the doctoral thesis is embedded in a research project that is driven by a consortium of approximately fifteen participants covering both academic and commercial sectors in aspects of a wide variety of business domains. The current situation, issues in this technology and problem solving approaches will be described in the following short paper.

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General Terms
Management, Performance, Design, Reliability, Standardization.

Keywords

1.CURRENT SITUATION
The difficulty in accurately detecting, predicting and handling complex situations is a decisive process in many domains like automotive, finance, logistics or entertainment. Being an aspiring technology, the Complex Event Processing (CEP) approach helps to gain situational insight from service or event oriented architectures while processing event flows in real-time. Business Process Management (BPM) and CEP are currently deployed side by side by the adopters having the barrier of suitably designing and implementing BPM and CEP solutions on the basis of domain specific problems. Herein BPM provides the ability to model, manage and optimize a companies business processes whereas CEP resides as a parallel running platform providing the analyses and processing of events. Event-Driven Business Process Management (ED-BPM) enhances BPM with CEP-capabilities allowing a communication via events which are emitted by a wide variety of sources. This leads to an even more urgent need of interconnecting and enhancing BPM not only with CEP but moreover with Service Oriented Architecture (SOA), Event Driven Architecture (EDA), Software as a Service (SaaS) and Business Activity Monitoring (BAM).[1]

Many entertainment companies today, e.g. Slicethepie Ltd. or Gameforge AG have developed business models, “services” in the broader sense, which are tailored to a broad mass of users relying on the internet as a participation and collaboration platform. Due to testing, performance, cost and reliability causes, mostly heavyweight or flash-based client application are distributed to consumers which pre-process data on the client side before communicating the output to the company’s often internally hosted servers as shown in figure 1.

Figure 1: Simplified communication structure via the internet
Such an architecture is per se limited regarding changes and modifications on the business process and workflow side along with restricted capabilities in real-time data processing or fraud detection and prevention. Furthermore changes in a business process result most likely in a change of the source code of the application involving downtimes and very often the loss of work in flight from users who are currently connected to the system.
2. FOCUS OF THE RESEARCH

The Future Internet of Services, the paradigm to which the Internet is evolving, consisting of services which are produced, consumed and mashed up by a worldwide network of participants [4], the entertainment domain with its strong affinity to the internet itself has to prepare its business models and business processes for a grave change. Because of being heavily dependent on massive user collaborations, fast and reliable content delivery and the processing of the consequential contribution data, the entertainment domain stands in the forefront of adapting ED-BPM to act and react proactively on occurring issues. Use-Case scenarios cover a wide field of activities including fraud detection/management, user characteristics analysis, service interoperability, third-party implementations and the aggregation and interpretation of complex interrelations between those activities to dynamically change and influence business processes. Transcribing these goals in the entertainment domain reveals the need for a domain specific reference model by assembling and researching fundamental event patterns and substantial domain wide similarities. An exemplified architecture is shown in figure 2, enhancing figure 1 by lightweight clients on heterogeneous consumer devices providing platform independency from the consumer point of view.

![Figure 2: Architectural view on a possible ED-BPM via Internet of Services structure](https://via.placeholder.com/150)

On the service provider side the computing center is replaced with the resources directly attached by a cloud computing company to gain maximum flexibility in terms of performance, scalability, redundancy, reliability and cost. The legacy infrastructure supersedes the internal computing center in order to observe, aggregate and process the event streams generated by the consumers and other producers who mashup the provided services via the Internet of Services. Though having a widespread mix of protocol standards on the fragmented market it is not enough to simply transform and mediate the streamed information [3]. Furthermore the event streams need to be processed, by a variety of software components like an Enterprise Service Bus (ESB) in addition to a CEP-Engine within an ED-BPM approach to achieve a business process and workflow environment which is dynamically shaped and triggered by the occurrence of complex events.

A use case scenario can be the implementation of this technology in the scouting and reviewing application from Slicethepie. This application is currently limited to rigid business processes and an inflexible database system which results in a heavyweight client system to monitor the reviews with forensic linguistic software and avoid the incidence of fraudulent scouts within the actual session. By adopting ED-BPM in this scenario the application for the reviewers will be trimmed towards a solely presentation and interaction interface for the services emitted and maintained by Slicethepie. The backbone of the system including the reusable linguistic fraud detection software will be hosted externally by a cloud computing provider whereas the business logic is maintained in-house. Standing in the center of the ingoing and outgoing event streams, allows the observation and correlation of both real-time and persistent stored data which can be used as event triggers for starting new business processes as well as for changing the flow of business processes that have already been launched according to situation suited procedures. Reviews that are shared between consumers via instant messaging systems to bypass the fraud detection system could be detected, weighed on a threshold scale and either get marked as suspicious or in immediate cases get passed on to a manual investigation. Furthermore it is possible to enhance the system to act as a service provider for business partners in means of allowing other companies or interested parties, e.g. movie studios or media publishers, the usage of services, again automatically managed by the underlying infrastructure and business processes. This consecutively derives the need for a domain specific reference model for the entertainment sector in which domain wide similarities are identified and specifically tailored to suite the requirements. This model will then reside as part of the DoReMoPat approach delivering bundled standards, interconnection options and domain specific solutions to lay a solid foundation for the competitiveness and agility in the Future Internet of Services.

3. REFERENCES


