Business Activity Monitoring Based on Action-Ready Dashboards And Response Loop

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Abstract. Nowadays up-to date and meaningful information about business processes and business activites are foundations of a successfull and flexible business. The quicker critical situations are recognized or predicted and solved the less the negative consequences occur for the enterprises.

The idea of real-time information provided for decision support has existed for several decades. Considering those solutions is more likely to show that they are restricted to propriatery domains. In recent years Business Activity Monitoring (BAM) has emerged in order to provide real-time information accross business processes and to support business' users decision. However in our opinion existing state-of-the-art BAM solutions have not come up to these expectations yet.

1   Introduction

Businesses are looking constantly for ways to increase flexibility and respond more rapidly to changing markets. By using business process management many organizations have already improved greatly their operation efficiency. However, recently businesses have been confronted with the problem that the information flow within their processes have grown enourmously day-to-day. In order to become more responsive within this fast-moving environment they must accelerate the analysis and decision-making in a real-time manner. These requirements caused new concepts relatively like BAM to hold sway. The Term BAM has been defined as the concept of providing real-time access to critical business performance indicators to improve the speed and efficiency of business operations [1]. The objective behind BAM is to detect events, filter them and trigger business process management solutions in order to create the capability of reacting instantly. The near real-time monitoring of operational processes is generally accepted as the key benefit of BAM against conventional business intelligence. Using this capability, companies have been able to monitor their business processes and identify failures or exceptions. However state-of-the-art BAM solutions are limited to real-world dashboard applications which display real-time and colorful charts based on some predefined key performance indicators (KPI). In our opinion these functionalities are for the first generation BAM environment sufficient but not enough for a 'real-time enterprise'. Existing BAM solutions firstly based

mainly on reporting instead of analyzing, secondly it considered only past activities without predictions for future business and thirdly the control mechanisms for business users are very rudimentary and not an integral part of the BAM.

2   CEP As Enabler For Action-Ready Dashboards and Response Loop

Business processes can be quite complex in the sense that they require communication between multiple actors and the system. In order to monitor those processes we need a technology which can monitor this complexity in real-time and in a more intelligent way. Complex Event Processing(CEP) [2] is in our opinion one of the most promising enabling technologies to deal with this complexity since we are convinced that the CEP capabilities like high throughput, low latency, complex computation or scalability fulfill the business requirements. Thus CEP is the essential component of a BAM solution (see fig. 1).
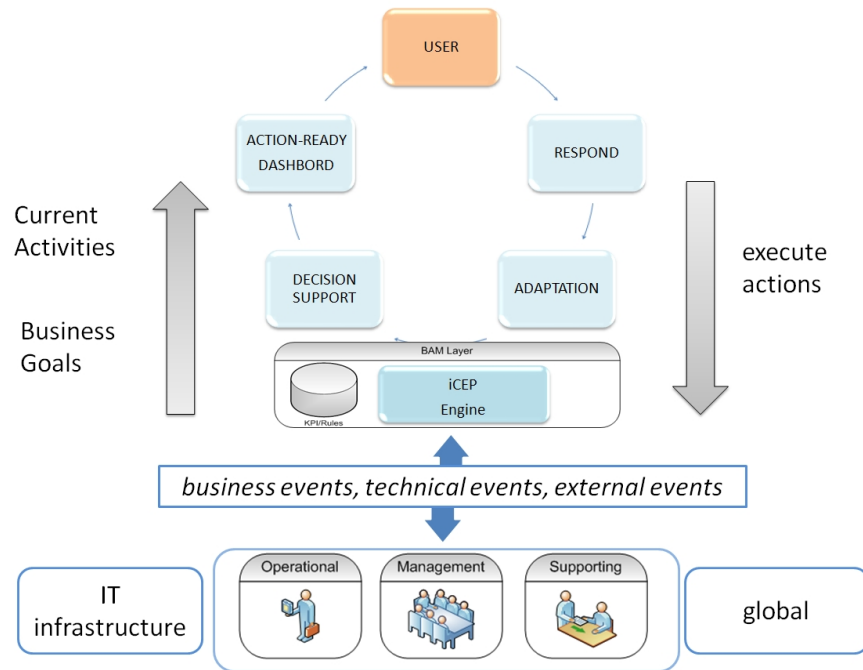

Fig. 1. Action-ready BAM with response loop.

The CEP Engine is responsible for making sense out of heterogenous events from various sources based on appropriate formalisms and semantics. Instead being reactive the engine has to operate proactively and recognize situations

before they occur really. Therefore we believe that a prediction model and the capability to process with similar events is needed. Also additional contextual information about events has to be captured in order to process a situation appropriately and to reduce the number of false alarms for example.

We consider BAM as an intermediated layer between the business responsibles and the information flow in the business processes. Unfortunately, current BAM approaches fall short of supporting the business user response loop. Hence, in contrast to existing BAM solutions our idea is to put the business user in the loop. It means that the business user doesn't only get information about business goals and current activities but also that he is able to react and execute actions in exceptional cases in an integrated manner.

In bottommost layer are the processes which produce the events. Nowadays business users need not only some reporting tools but also the capability analyze situations. Hence the business IT infrastructure, business related unstructured documents and global accessebale web resources should be considered in order to get better analysis results. For example instead of getting information that five failures occured last week regarding the transaction process it is more helpful to tell the business users that those five failures are not relevant for the business. To achieve the expectations as described earlier a BAM solution needs besides the CEP engine further components which are part of the BAM layer

- **Decision Support** As BAM solutions are getting more popular, users will be flooded with rich but action-unready alerts and may disregard many of them due to the lack of time. Hence appropriate decision suppport is needed for a recognized situation based on defined decision rules. Important is that the generated decisions are free from contradictions.
- **Action-ready Dashboard** The generated decisions are transformed to actions and integrated on the visualized dashboards. The generated actions can be complex like delayed reactions, sequences of actions or internal knowledge/process self-update actions.
- **Respond** User's responds/actions are captured within the BAM system and forwarded directly into the underlying systems for execution.
- **Adaptation** Within the adaptation the user's responds are integrated again in to the decision in order to improve the decision support and the generation of action-ready dashboards.

3   Conclusion

Existing BAM solutions fall short of one's expectations. The functionalities are mainly limited to monitoring and visualisation of events instead of analysing and providing appropriate decision support for business users. Hence our idea is to build a more 'intelligent' CEP engine as the main component for new generation BAM. On top of this engine decisions are generated and integrated into the action-ready dashboards. The business user is part of our BAM cycle and sends responds directly into the underlying systems.

References

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