The Needs of Service Identification for Service-Oriented Business Process Management

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Abstract

Since the trend of adopting SOA into enterprise applications, the needs for definition and identification of services have been recognized. There is a growing body of research carried out on the identification of different types of services. Identifying right granularity services is important: if the service is of large size, it goes against the reusability principle of SOA, whereas if the service is of small size, then it causes unnecessary computing power for implementing any business functions. Without a formal (semi)-automatic approach to identify services, it is difficult in migrating existing systems into service-oriented systems. This paper explores the need for service identification for service-oriented business process management systems. The current approaches, techniques and methods of service identification are reviewed, and limitations of the each approach is analysed. New requirements and techniques
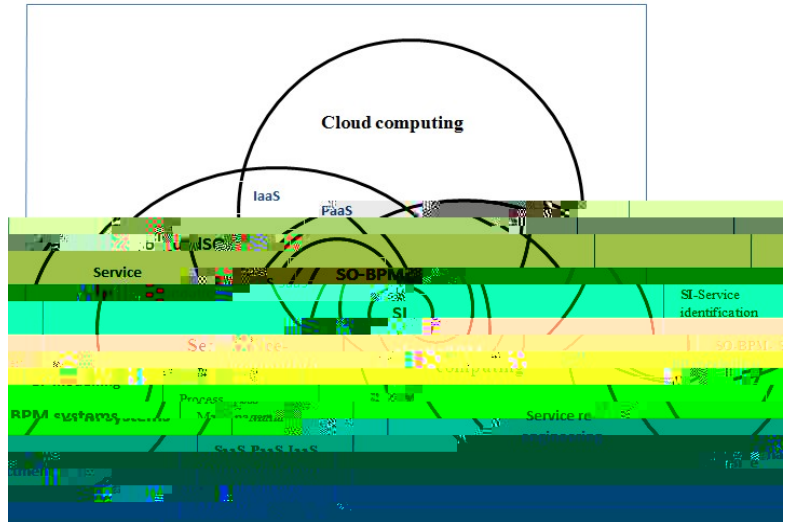
Figure 1: Position and importance of Service Identification in cloud computing, service-oriented systems and BPM system

The rest of this paper is organized as follows: Section 2 discusses benefits of service identifications. The existing service identification methods are reviewed in Section 3. In Section 4, we discuss requirements of a new method of service identification. Finally, conclusion and future work are summarized in Section 5.

2.0 Benefits of Service Identification

This research is driven by both the academic and industry, there have been several publications in the academia where the approaches are static i.e. they are built for a tailored case [15], [3], [16], which does not satisfy the needs of industries. Motivation: it is based on the knowledge of service identification depending on the right granularity of the services i.e. too large size of service which is against the re-usability principle of SOA, while too small size of service causes unnecessary computing power for implementing any business functions. With industries having requirements of migrating legacy systems into service-oriented systems, there is no formal (semi)-automatic approach to identify services for supporting and building business process management systems (BPMS).

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reusable which is against the principle of SOA, therefore the "right-size" of business service has to be identified which fits for purpose, by knowing the "right" service granularity.

This research also contributes to understanding the notion, importance of applicability of service identification in BPM, cloud computing, and other service-oriented paradigms. Also, it introduces new concepts, approaches of identifying services and new ways of thinking about business services.

In 2005, organizations adopted enterprise architecture (EA) [18; 19] for the reduction of complexity and alignment of their business with information technology (IT), resulting into reduction in organization's cost [4]. Lampe et al. (2013) [20; 21] highlighted "....15% to 20% of banks' overall administrative expenses are attributed to the IT cost [20].

Figure 2 depicts the information technology (IT) spending on Information technology (IT) overhead 1%, infrastructure 24%, application operations and maintenance 45% and application development 29%, corresponding to 12-16 years of operation. In a study of the IT cost on various continent, DB research [46] stated that 343B(,)3((i)7(s)10(e)4 d(a)4(f)7(I)2(nv)12(e)4])1-tb(i)7(s)10aenelit9%(t)7(r)2din(a)4(in)12(g)-1(I)2(n(t)7 c)4

Scenario: Schulte et al [21] demonstrated an example scenario which depicts a simplified business process scenario from banking industry. Figure 4 depicts the involvements and collaboration of international banks in different continents like Asia, Europe and America. Each of these continental banks has their own data processing facilities existing in the public or private cloud. It is important to know that service usage and exchange in cloud computing (public and private cloud) as

overhead cost (1%), infrastructure (24%), application operations and maintenance (45 %) summing up to 70% cost, this cost can be reduced if they are service-oriented and they can out-source for other people to maintain, because they system is easy to integrate and they can pay-per-

methods, the methods that have been referenced i.e. well-cited more than two times or improved upon are considered, for instance, Bianchini et al. [14] method was improved upon in 2014.

These criteria give us the understanding of the differences, similarities and the short-coming of several numbers of publications in service identification methods. Selected corresponding evaluation criteria are used to give an overview of the

enterprise software service identification. [7, 28] describes what an overall approach cou

operations based on ontology and patterns, service quality analysis using the quality metrics like cohesion and coupling, and service performance like processing time, service response time and other considerable and applicable time.

4.2 Repeatable approach and undefined data type size

It is important that the workable approach should go through cycle of (re)checks for any error i.e. variability in the result for a given case can be detected early. Most of the current approach and method never considered this factor. Also, it important that our approach will not have a specified number of data type to use. It is required to take more or less data types for any case given.

4.3 The Information Environment

All organizations achieve their business goals, interest and needs through service sharing, usage and exchange, which contains information. This information could contain free flow or secretive data which can be accessed by the right agencies or individuals of a company. In business sense, an organization may demonstrate a clear position and service use but in the real world it may be heterogeneous in its feature and application i.e. it may be open or competitive in one context and protected and closed in another context. In identification of services around these contexts is an issue that has to be addressed. The current service identification methods and techniques possess unique feature i

5.0 Conclusion and Further Work

The investigation shows that organization has always been a complex environment whose functions, processes and resources are daily thirsty for improvement. This improvement has not been fully achieved over the past years of servicing the need of customers and itself (organizations' business process).

8.   Azevedo, L. G., Santoro, F., Baião, F., Souza, J., Revoredo, K., Pereira, V., and Herlain, I. A method for service identification from

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