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An E-Business Model Facilitating Service Provider Selection in B2C E-Commerce

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Abstract

The advent and expansion of the Internet and its applications, among them e-commerce, has provided new opportunities for the emergence of novel e-business models. A portion of these models are in the form of performing a mediatory role to provide some services for customers or businesses, and to facilitate transactions between them. In B2C e-commerce, often, a service consumer may supply his service demand from a range of providers and when he doesn't have any transaction with many of them making an accurate decision becomes challenging. Therefore, he would need to interact with others to acquire relevant information. Current approaches for addressing this issue are generally rating-based and perform poorly. Recently, an experience-based approach has been proposed by Şensoy et al [1]. This paper reviews this approach, analyzes its weaknesses and problems and proposes a new model to eliminate those problems, in which a third party assists the consumers in choosing their desired service providers.

Keywords: Service provider selection, e-business model, third party, B2C e-commerce

1. Introduction

One of the major advantages of using information and communication technology infrastructure for conducting commerce and business is that, it provides the opportunity to establish novel and innovative business models. In literature, various authors from different disciplines have defined and discussed *business models* [1] [2] [4] [8] [13] [19]. Rappa [13] defines *business model* as "a method of doing business by which a company can sustain itself -- that is, generate revenue."

Some of the e-business models are the ones in which a third party places itself between a service consumer (SC) and a service provider (SP) and plays an intermediary role to facilitate commercial transactions between the two parties. To exemplify, in the auction broker model, a third party conducts auctions for individuals or merchants who intend to sell their products, services or information [13].

In the B2C e-commerce model, a consumer, having a service demand, must choose between various providers, in order to decide which company will best satisfy his needs / meet his requirements.

Reputation systems are based on the ratings of SCs and are the current dominant SP selection approach [10]. Reputation systems' architecture can be either centralized or distributed [10]. In centralized reputation systems a central authority is responsible for collecting ratings from SCs, aggregating them, and finally, extracting a reputation score for each SP. SCs can then use these scores to aid their decision making [14] [15] [10]. Distributed systems, in contrast, do not feature a central body which collects ratings and shares reputation scores. Instead, ratings are generally stored and exchanged by individual participants in system [10]. Some authors have discussed the idea of applying distributed reputation systems in Peer-to-Peer (P2P) networks, in order to determine the reliability of peers [3] [5] [6].

Other approaches and methods, such as referral systems [21] and FIRE framework [9], are also propounded by researchers. These come under the distributed approach category, where, for service selection, the *trust* among entities is considered. Trust is essentially an emerging property of a society [20] and results from interactions among entities. The main difficulty, however, in a distributed system, lies in its non-formalized approach to trust-monitoring,"most formalization of trust lack expressiveness and denote trust merely as a rating" [17, p.326].

In rating-based approaches such as reputation systems, the rating which a given service consumer offers to a service provider, is dependant upon a consumer's own evaluation and satisfaction criteria, and may significantly differ from one service consumer to another. Therefore, a rating provided by a given SC would have the potential to mislead, or prove unhelpful to another SC with differing satisfaction criteria.

Şensoy et al [17] propose a distributed experience-based approach for SP selection in which SCs do not specify their level of satisfaction from SPs with simple ratings, instead they record their experiences, resulted from their transactions with SPs and use these experiences to express the quality of services provided by SPs, and share them with other SCs. Consequently, each SC can use these experiences to evaluate SPs according to his or her own satisfaction criteria and make a reliable decision in choosing the appropriate service provider.

The remainder of this paper is organized as follows: as our proposed e-business model is based on an experience-based approach, the next section explains this approach with further details; section 3 shall review the difficulties and drawbacks of distributed experience-based method. Section 4 is dedicated to an introduction of our proposed model and shall highlight the ways it overcomes the discussed problems. The paper discusses the value proposition of the proposed model for SCs and SPs but do not include potential revenue and cost models. Section 5 compares our proposed model with distributed model. The final section of the paper represents our conclusions.

2. SP Selection Using Distributed Experience-based Method

To have an idea about the way that a distributed experience-based method works, here we have briefly represented the proposed method in [17].

We consider a situation in which SCs are looking for their desired SPs to supply their service demands. In order to generate a service demand, several service attributes must be in place. Service attributes may include the price of a service, the geographic location of its projected SP, its delivery duration and so on. In order to select the desired SP, SCs may take the three following steps: 1- discovering other SCs having similar service demands, 2- collecting relevant experiences from those SCs, 3- using collected experiences for modeling and evaluating various SPs and choosing the desired one. In continuation we will look at these steps with further details.

2.1 Discovering Other SCs Having Similar Service Demands, Collecting Relevant Experiences and Modelling SPs

In the distributed experience-based architecture, each SC has a software agent with a unique identifier (e.g., IPv6 address). Also, each agent has a list called an acquaintance list (AL) filled with other SCs who have similar service demands with the owner of the list. The features of a service demand are represented by a vector called demand vector (DV). After receiving a service, SC records the features of the provided service in another vector called service vector (SV). The peer SV of a DV has exactly the same fields as DV, but, whereas DV describes the desired service, SV describes the actual service provided by a SP. An experience is defined in equation 1, Where ED refers to the date when the experience has occurred.

$$E = (DV, SP, ED, SV) \quad (1)$$

To discover other SCs having similar service demands, a SC uses a special packet called peer discovery message (PDM). This packet contains a DV, a vector and a TTL value. Δ vector has the same number of fields as DV and its each field represents the maximum acceptable deviation from a corresponding field in DV, therefore, two DVs will be considered similar if $|DV_1 - DV_2| \leq \Delta$. TTL defines the number of hopes which a PDM should be forwarded. This packet distribution scheme resembles a flooding-based P2P protocol [11]. SCs also use Request Discovery Message (RDM) and Request for Acquaintances Message (RAM) for updating their ALs.

Once a SC discovers other SCs with a similar DV, he fills his AL entries with those SCs, and then uses a special packet called Request for Experience Message (REM) to obtain relevant experiences. At that moment the SC uses the collected experiences to model various SPs and choose the one that would best satisfy his needs / meet his requirements. For this purpose, SVs, which represent the quality of services provided by SPs, are used. First, the SC's agent groups experiences related to each SP and then aggregates each SP's experiences individually to model the offered services of various SPs. A variety of methods can be used for aggregation and modeling of experiences related to different SPs. A parametric classification technique using Gaussian model and a case-based reasoning approach are propounded in [11]. Some other applicable methods are also discussed in [10]. However, the weighted average strategy is the simplest applicable method [17] and, here, we will briefly illustrate it.

2.1.1 Weighted Average Strategy

In this method the aggregation for a given provider P, is computed using the weighted average of SVs related to that SP:

$$A(P) = \sum_{i} W_i \, V_{pi} , \qquad (2)$$

$$\sum_{i} W_i = 1 \qquad (3)$$

Here, weights imply the relative importance of each SV. Once, the average service given by each SP is computed, SC_x selects the provider with the closest average SV to its DV.

2.2 Simulations

Şensoy et al [17] have conducted some simulations to assess the performance of the distributed experience-based method in comparison with other SP selection methods. Four different SP selection strategies are implemented in the simulations and are compared in numerous experiments. These strategies are including:

- Random SP selection (SPS_{RAND}): In this strategy a SP is randomly chosen from a set of SPs.
- SP selection using experiences (SPS_{EXP}): This strategy uses the distributed experience-based method for SP selection.
- SP selection using ratings (*from agents chosen randomly*) ($SPS_{ratings}^{random}$): In this strategy before selecting a SP, SC collects ratings from other SCs and use them for decision making . In some rating-based systems, ratings are obtained from SCs who are randomly chosen as a sample from a set of SCs [10]. For its simplicity, It has been the most commonly used method both in research context and in practice [7] [9].
- SP selection using ratings (*from agents with similar demand*) ($SPS_{ratings}^{similar}$): In this strategy, contrary to $SPS_{ratings}^{random}$ strategy, ratings are colleted from agents who have a similar demand and satisfaction criteria as the SC.

In simulation, whenever a SC decides to receive a service, he will use all of the aforementioned strategies to make four different SP selections. The four strategies are compared based on the satisfaction ratio they provide for SCs. In simulations, SP and SC sizes are set to 10 and 300 respectively.At the beginning, agents lack any experiences. As the time goes by, and the number of experiences increases, agents are expected to model SPs better and make more effective decisions. At each epoch only a small portion of SCs request and receive a service. Table 1 shows the fields of DVs and SVs. Each field represents a dimension in a multidimensional space called service space. Also, each SP has a multidimensional region generated randomly in the service space, called service region, covering all the services produced by that SP. Service space and service region have nine dimensions, which are shown in table 1.

Table 1. Fields of DVs and SVs and their ranges

Field name	Type	Range
SoppingItem	Integer	1-1000
Location	Integer	1-100
DeliveryType	Integer	1-6
DeliveryDuration	Integer	1-60
ShipmentCost	Double	0-250
Price	Double	10-11000
UnitPrice	Double	1-100
Quantity	Integer	1-100
Quality	Integer	1-10

When a SC requests a service by randomly generating a demand region within the service space, the SP first fixes the immutable fields (i.e., ShoppingItem, Quantity and Location), and then randomly generates a service within its region space. A demand region can be represented by a vector referring to center of the region and a Δ vector referring to the margins of the region. If the provided service for a given service demand stays within the margins of the requested service, then the SC who has received this service will be satisfied. Each service demand is generated so that at least one SP will provide it in a satisfactory way.

2.2.1 Simulation Results

Figure 1 shows the satisfaction ratio for three SP selection strategies. SPS_{RAND} and $SPS_{ratings}^{random}$ strategies have almost the same performance. It reveals that collecting ratings from randomly chosen agents is not efficient and procures almost the same outcome as selecting a SP randomly. Satisfaction ratio for SPS_{EXP} strategy is about 90%. Unlike the SPS_{RAND} and $SPS_{ratings}^{random}$ strategies which have almost the same satisfaction ratio during simulation, satisfaction ratio for SPS_{EXP} increases as the simulation continues.

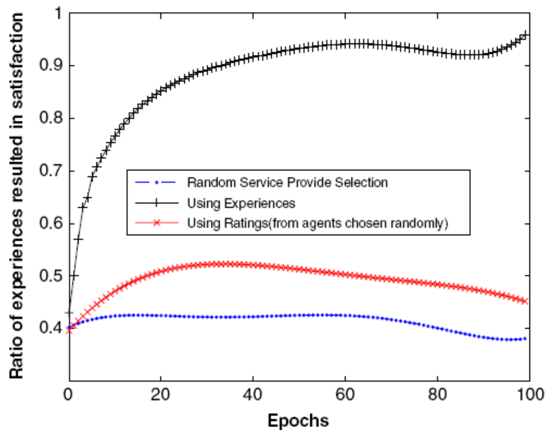

Figure 1. Satisfaction ratio for different strategies

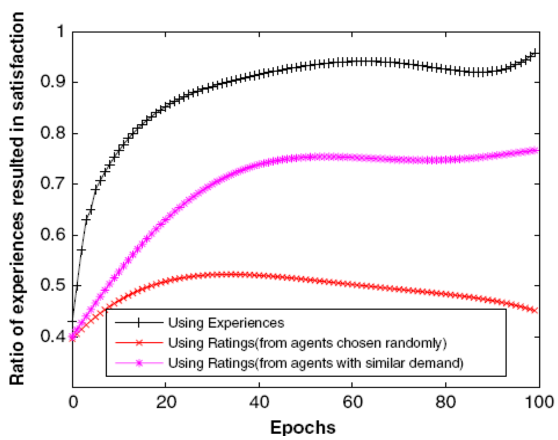

Figure 2. Satisfaction ratio for different strategies

3. Problems and Weaknesses of Distributed Experience-based Method

In this section we will discuss some difficulties and weaknesses of the distributed experience-based method are discussed.

3.1 Discovering Other SCs With Similar Service Demands Using PDM Packets

As stated before, the distributed experience-based method uses PDM packets to discover other SCs with similar demands. These packets are distributed using a protocol which resembles a flooding-based P2P protocol [11]. This protocol is inefficient from the viewpoint of the heavy traffic that it imposes to the network. Furthermore, it may also consume a considerable amount of time to discover an appropriate number of SCs with similar demands.

It is evident that the success of the distributed experience-based method depends on the expansion of the society of SCs who use the method for choosing their appropriate SPs. So that, SCs would be able to simply obtain an appropriate number of relevant experiences from other SCs in the society and evaluate SPs, based on those experiences and select their desired SP. On the other hand, the distribution protocol for PDM packets, lacks the scalability and the more the society of SCs grows, the more challenging and problematic discovering other SCs with similar service demands using PDM packets becomes. In our proposed model, interactions among entities are reformed in such a way that, there will not be any necessity for exchanging such a plenty volume of PDM packets for discovering other SCs with similar service demands.

3.2 Establishing, Managing and Updating AL

Each SC constitutes a list called AL for his service demand and adds other SCs with similar service demands to it. A SC's agent uses PDM and RAM messages to add new entries to its AL, RDM messages to update AL's existing entries and REM messages to obtain experiences from AL's entries. Additionally, to stay consistent with the ever- changing environment, it updates its AL periodically.

The aforementioned list and messages are used to enable SCs to collect their required experiences from other SCs. When, experiences are stored and shared by individual SCs in a distributed schema, using such a list is almost inevitable. Using a third party to manage and share experiences centrally, SCs will not need anymore to establish, manage and update such a list for obtaining their required experiences and will be able to obtain them using a simpler and much more efficient procedure as will be discussed latter.

3.3 Dissemination of Invalid Experiences

The distributed experience-based method presumes that all of the shared experiences by SCs are valid and have actually occurred. However, since, there is not any central authority, the accuracy and validity of experiences can not be guaranteed, and invalid experiences are likely to be disseminated in system. For example a SP with poor performance may generate and disseminate invalid experiences in order to sustain its competitive advantage in market. Invalid experiences result in inaccurate modelling of SPs and consequently a decrease in satisfaction ratio of SCs. This will endanger SCs' trust towards system's accuracy and validity.

In practice, offering a mechanism to guarantee the accuracy and validity of experiences in a distributed schema is so complex and even impossible. However, such a mechanism is simply applicable where a third-party is in place to store and manage experiences centrally.

3.4 Inefficient Collection of Experiences

Another difficulty with the distributed experience-based method is related to its inefficiency in collecting experiences. In this method, a SC's agent starts to model SPs as soon as it obtains a predefined number of experiences related to a given DV (e.g., after 250 experiences to reach 80% of satisfaction ratio according to the simulation results). However, the appropriate number of experiences for effective modeling is not determinable beforehand, and primarily depends on the number of candidate SPs capable of offering the specified service in DV. The attributes of a service demand, affect the number of candidate SPs. For instance, the "*location*" field in DV referring to the location of desired SP, may be set to a wide geographical area and therefore significantly increase the number of candidate SPs.

3.4.1 Unbalanced Experience Collecting

Another problem which directly originates from ignoring the SP that an experience belongs to, when a SC's agent is collecting experiences, is the disability of the agent to collect experiences of various SPs in a balanced way. In fact, regardless of the corresponding SP of an experience, The SC's agent collects a predefined number of experiences and then uses them to model and evaluate various SPs. As a result, there may be 100 collected experiences for a given SP; whereas no experiences are collected for another SP and yet for some SPs a few number of experiences, so that they can not be modelled reliably. A hierarchical architecture of third-parties and their interactions, enable our proposed model to overcome problems related to improper and inefficient collection of experiences.

3.5 Security Related Problems

In the distributed experience-based method, SCs are individually responsible for storing, managing and sharing their experiences. Taking into consideration, that agents interact with each other and exchange their experiences, they are potentially vulnerable to security threats, and SCs' sensitive information are at the risk of unauthorized access. Although, this risk can be minimized by considering and applying security principles in designing and implementing agents; nevertheless, such issues often accompany the distrust of some SCs and may have a preventive effect on their participation in system.

Another security related problem is the likelihood of SCs' privacy violation. Generally, SCs prefer not to reveal information regarding, what services they have received, how much they have spent for it and where they have supplied their services from. Since, in the distributed approach, each SC's agent has a unique identifier (e.g., IPv6 address), and each SC stores and shares his experiences on his own machine, they are potentially at the privacy violation risk (V. Senicˇar et al., 2003), and their identities may be revealed and be linked to their experiences. Privacy risks also may have a preventive effect on SCs' participation in system.

4. The proposed model for service provider selection

Our model, in essence, utilizes the same method for SP selection as the propounded method in the distributed experience-based approach. However, here, a third-party which afterwards we will call it Experience Provider (EP), fulfils an intermediary role in interactions between the set of SCs. Consequently, the transformed pattern of interactions among the set of SCs, will assist in resolving the discussed problems in the previous section, and SCs will be able to share their experiences and utilize other's experiences to choose their appropriate SP in a less expensive and more effective way.

Here, contrary to the distributed approach, a centralized approach is taken, in which EPs are responsible for storing and sharing experiences centrally. Rating-based methods have also utilized both distributed and centralized approaches [10]. SCs, SPs and EPs constitute the essential entities of our model. Interactions among these entities and the role that each one plays, enables EPs to collect, store and share experiences resulted from transactions between the sets of SCs and SPs.

An EP covers a set of SPs and collects and shares their related experiences. SCs won't need to communicate directly with each other for obtaining their required experiences. Instead, they communicate with EP which contains a repository of experiences related to the set of covered SPs.

Section 3.4.1 discussed the problem of unbalanced experience collection for various SPs. When experiences are managed centrally by an EP, they can be categorized according to the domain that they belong to. For example experiences may be categorized to, book, car, cell phone and etc. furthermore, experiences within each category can be organized according to the SP that they belong to. As a result, when a SC requests experiences for a given service demand, in addition to the DV, EP can consider the corresponding SP of each experience, and thus choose a balanced number of experiences for each SP, so that effective modelling of various SPs would be feasible.

The representation of experiences is a vital issue. Şensoy and Yolum [18] argue that experiences require the representational power of ontologies. And, considering the fact that experiences fall into different domains, they propose two classes of ontologies, namely, the base level ontology for domain independent concepts and the domain ontology for domain dependent ones. The base level ontology covers domain-independent infrastructure of the experience ontology. And, the domain level ontology captures domain specific properties and concepts.

Whenever a SC needs a service and wants to obtain related experiences, he sends his service demand in the form of a DV along with a Δ vector as the similarity metric to the EP. EP uses the Δ vector to compare the received DV with the existing DVs in its experience repository and accordingly marks the qualified SPs. EP, then chooses a balanced number of experiences for each qualified SP to be used in modelling and evaluation phase.

As the time goes by, increased participation of SCs would possibly result in accumulation and storage of a huge volume of experiences in the EPs' repository. Consequently, the number of qualified experiences related to a particular DV and SP may excess from the appropriate number required for effective modelling of that SP. In such condition, naturally, EP should select a subset of experiences for the SP. Selecting more recent experiences, those having DVs with higher similarity degrees and experiences that have been less frequently selected in the past, with a higher probability are some good ideas for selecting a subset of experiences.

By utilizing the proposed model, SCs will not need anymore to use the costly and inefficient PDM packet distribution method to discover other SCs with similar service demands. Instead, they will simply send their DVs to the EP and obtain their relevant experiences. Therefore, one of the major problems of the distributed approach regarding the inefficient and time-consuming procedure of discovering other SCs having similar service demands will be solved and SCs will be able to obtain their required experiences using a much simpler and more efficient procedure.

Once, for a given DV, relevant experiences are chosen by an EP; SPs should be modelled and evaluated based on those experiences. For this purpose, two different alternatives are conceivable, as the first alternative, EP, itself, can use the chosen experiences to model SPs and just notify the SC regarding the SP that would best meet his service demand. The second alternative for EP is to send relevant experiences to the SC and give over the modelling task to the SC, himself.

The problem of invalid experiences, discussed in section 3.3, directly originates from the absence of a central authority to supervise the entrance of experiences by SCs into the system. Since, in the proposed model, EP plays an intermediary role, it can utilize simple mechanisms as the central authority to supervise the dissemination of experiences and guarantee their validity. For example, SPs can assign some sort of credit to the SCs who have transactions with them, so that while SCs are sending their experiences to the EP they are required to provide the credit to prove the validity of their experiences. As a result, upon the receiving of an experience, EP can simply communicate with the relevant SP to examine the validity of experience and in the positive verification case, store the experience in the repository and share it for the use of other SCs.

In the proposed model, principal functions are performed by the EP and a SC's agent just performs a few simple functions. In fact, in order to obtain relevant experiences, the SC's agent just needs to send DV to the EP. Here, contrary to the distributed approach, establishing, managing and updating of acquaintance lists (ALs) is unnecessary. If, in response to a SC's DV, EP choose not to send back the relevant experiences, and instead, perform the modelling phase itself and just send back the ultimate result regarding the SP that would best provide the requested service, then, we will not even need a SC's agent at all. In such conditions, SCs can send their DVs through a web-based interface provided by the EP and also receive the result through the same interface. Therefore, by utilizing an EP to store and share experiences, the required procedure for collecting experiences and modelling SPs can be performed with simpler steps and more performance. This procedure is illustrated in Figure 3 and goes as follows: 1) Sc sends his DV to the EP. 2) EP searches its experience repository and sends back relevant experiences/modelling result. 3) SC fulfils a transaction with the proposed SP. 4) once the requested service is delivered by the SP; SC evaluates the offered service and disseminates the corresponding experience to the EP. 5) EP communicates with the corresponding SP to verify validity of the disseminated experience. 6) In the positive verification case, EP stores and shares the experience.

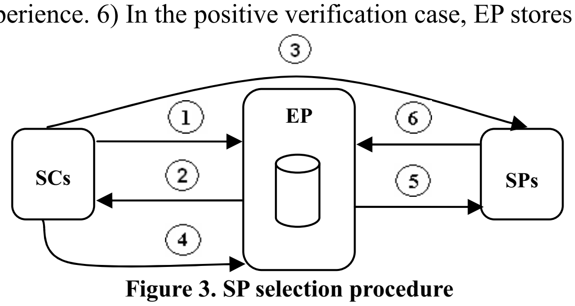

Figure 3. SP selection procedure

Since here, SCs do not store and share their experiences individually, and this responsibility is ceded to the EP, they are not any more at the risk of unauthorized access to their sensitive information as a result of potential security vulnerabilities in their software agents and permitting others to access their stored experiences. Establishing a secure and confident channel between SCs and the EP for exchanging experiences and also providing a safe environment for storing experiences is achievable through exercising current and developing security mechanisms and technologies.

Additionally, by adopting appropriate policies and exercising existing mechanisms, an EP can enhance SCs' trust regarding their privacy protection and anonymity [12]. By eliminating security risks, SCs would have more motivation to take part in system and share their experiences with other SCs.

Since in B2C e-commerce, SCs often tend to supply their service demands in the shortest possible time and by spending the least transportation cost; generally, local and regional SPs are preferred. Therefore, in order to maximize the effectiveness of provided service, an EP chooses to cover the experiences related to a set of regional SPs. Supposing that this region is a province, then, the EP will store and share experiences that are related to the SPs that are located in that province.

Therefore, a SC who intends to supply his service demand from a regional SP can simply communicate with the corresponding EP covering that region's experiences, send his DV, collect relevant experiences and evaluate various SPs of the region in order to choose the most appropriate one.

However, such structure can prove useful, provided that a SC needs to choose a SP among the set of regional SPs. In such a structure, a SC who intends to supply his service demand from a wider region, such as a country, supposing that different country's regions are covered by different EPs, has to separately communicate with each EP, send his DV, receive the result and finally compare different SPs, proposed by different EPs to specify the most appropriate one. This procedure is clearly inefficient and time-consuming.

To solve this problem and enabling scalability, we propose a hierarchical model and some sort of collaborative commerce in which different EPs that have covered different regions, collaborate with each other to fulfil scalability and enhance system's usability. The number of hierarchy levels can be varied and principally depends on the extent of the region covered by each EP. To comprehend the concept of a hierarchical model, consider a given country including several provinces that each province is covered by an individual EP. To enable SCs to model and evaluate SPs on the country scale, we need an EP in a higher level linking different EPs that each one covers a province; we call this EP a Root Experience Provider (REP). The REP doesn't itself store any region's experiences; nevertheless, it establishes connections with EPs covering different regions and realizes the scalability.

When a SC intends to supply his service demand from a set of SPs on the country scale, the following scenario goes on: 1) SC sends his DV to REP. 2) REP, in turn, sends the DV to all of its linked EP. 3) Upon receiving DV, each EP separately models regional SPs using its experience repository and sends back the result to the REP. 4) By receiving results from different EPs, REP compares them and notify the SC about the ultimate result regarding the SP that would best provide the requested service.

By expanding this hierarchy, modeling and evaluation of SPs from wider regions will be also possible. Figure 4 illustrates the hierarchical model.

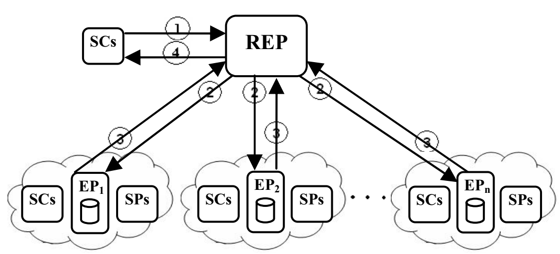

Figure 4. The hierarchical model

5. Comparison of Distributed and Centralized Approaches

Table 2 summarizes a qualitative comparison of distributed and centralized approaches according to some of the most vital criteria. As distributed and centralized experience-based approaches utilize an objective method for SP selection, they procure a significantly better satisfaction ratio in comparison with today's common rating-based approaches. However, experience-based approach can prove effective, provided that, a balanced number of experiences is already available for each potential SP.

Table 2. Comparison of distributed and centralized approaches

	Distributed experience-based	Centralized experience-based
Satisfaction Ratio	High	High
Implementation	Complex	Simple
Scalability	No	Yes
Efficiency	Low	High
SCs' Trust	Low	High

Implementation of the distributed approach involves providing practical solutions for addressing the following intricate issues: 1) in order to enhance system's reliability, agents' past behavior should be considered in interactions; therefore, it should be impossible or difficult for an agent to erase its relation with its past behavior. 2) a distributed communication protocol for obtaining experiences from other agents in the community. Considering these issues, an effective implementation of the distributed approach is a complex practice. In contrary, since, in central approach a central authority (EP) is responsible for storing and sharing experiences centrally, the implementation is much simpler. Section 3.4 discussed the lack of scalability problem in the distributed approach. In fact, because of the costly an inefficient procedure used for SP selection in this approach, it loses its feasibility when there are a large number of qualified SPs related to a given DV. However, the centralized approach realizes the scalability by utilizing the proposed hierarchical structure.

As previously discussed in section 2.1, by using the distributed approach for SP selection, SCs would need to follow a costly an inefficient procedure. By establishing an infrastructure, where a third party is in place to manage and share experiences centrally, SCs would be able to choose their desired SPs using a simpler and much more efficient procedure.

Invalidity of shared experiences, as well as security and privacy violation risks, often accompany the distrust of some SCs. This, consequently results in the reduced rate of participation of SCs in the system. As previously discussed, in a distributed approach, addressing the aforementioned issues is too intricate. On the other hand, the existence of a central responsible authority (EP) significantly facilitates addressing these issues.

6. Conclusion

Since, in rating-based systems, each SC rates SPs according to his or her own satisfaction criteria, collecting ratings form other SCs and using them for decision making is not efficient and procures a low satisfaction ratio. In experience-based method, SCs record their experiences with SPs and share them with other SCs, here contrary to the rating-based methods; SCs do not include any interpretation regarding the received services and corresponding SP. Therefore, SCs can use experiences to evaluate SPs according to their own satisfaction criteria.

In practice, utilizing experience-based method with distributed approach is confronted with some considerable problems. However, taking a centralized approach and utilizing the intermediary role of EPs can provide the appropriate infrastructure to enable SCs to choose their desired SPs in an efficient and effective way. An innate side effect of deploying EP infrastructure is that it stimulates a motivation for SPs to have good behavior and consequently we can expect an improvement in the market quality.

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