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Designing an Enterprise Grid to Share Expertise and Human Resources of Organization

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Abstract .Human resource management is an important challenge in any organization. In this paper, a new grid named expert grid is designed to optimize the human resource management by using information technology. The main goal of this grid is to share the human resources and expertise in a widely distributed organization. Advantages of this method are balancing work force and work request, increasing efficiency and productivity by using experts of organization living in different place.

Keywords : Grid organization, human resources, information technology, management.

1. Introduction

Human resource management is an integrated and strategic approach of managing the most valuable asset of an organization to achieve the defined goals [1]. According to John Stowry, human resource management is "a set of interrelated policies that are based upon philosophical and ideological principles" [1]. He believes managing human resource needs a set of specific ideas and assumptions, strategic forces helping to make conscious decisions about employees, determining participation of line managers and using tools to form relations with employees [1]. In this study, policies and methods are developed to manage human resource optimally by using contemporary technologies such as computer networks and grid.

Computer network is a set of interconnected independent computers that exchange informations [2], in other words, network is a communication system between computers and accessories to share informations [3] leading an increase of confidence of systems with no limitations in geographical data and, resource sharing which can decrease the costs without loosing efficieny. Local network, urban network and broad network are the types of networks based on the distance between active computers in the system [4]. In the computer networks there could be many computers round the world connecting together; e.g internet.

Grid is a distributed system which makes possibile to share heterogeneous, autonomous and geographically distributed resources dynamically and efficiently [6]. Using data band width, versatility of network, high security of reception, data performance and the method of sharing are some of the most important challenges in grid system [6]. hardware, computing and software resources Can be shared in grid system. We want to design a grid sharing human resources and expertise. which is named expert grid. common grids and common methods to manage human resource are reviewed in section 2. the expert grid is designed section 3 and section 4 contains results and conclusion.

2. Related works

Human resource management is an integrated and strategic approach to manage the employees in an organization. Human resource management is strategic approach and making decision about employees and

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their relations [5]. Usually human resource management methods carry out their works phyisically leading time-consuming and lowering the efficiency, especially in large organizations [5]. The drawback of common methods is lack of balance between work force and work demand. In the large cities, work load needing experts may be high which may lead to reduse the speed in service leading a long queue. while, some experts in other cites in the same organization may face less work demand. here, a new technologies based on computer network is presented to solve this problem [5].

Computational, storage and network resources are aggregated in a grid system to provide pervasive access to their combined capabilities [14,15,16]. The grid systems have been used in various sciences such as spaceship process imaging and medical sciences [13]. Grid system can be divided to three categories: data grids, scavenging grids and computational grids.

Data grids primarily deal with data repositories, sharing, access and management of large amounts of distributed data. Many scientific and engineering applications require access to large amounts of distributed data each set of which may have their own formats. Many types of algorithms in such grid systems, like replication, are important to increase the performance of grid [7,8].

When ever a machine in scavenging grids remains idle, it reports its state to the grid node responsible for the management and planning of the resources. Then, this machine will be assigned the next pending task to be executed. Normally scavenging hinders the owner of the application, since the idle machine may change its state to be busy with tasks not coming from the grid system, which the application may be suspended or delayed. In this way the completing time may not predictable for grid-based applications. The project in [8] is an example of scavenging grids.

A computational Grid is a large-scale distributed system that supports integration of different computational resources from different administrative domains[9]. This is the case of parameter sweep problems, which arise naturally in several scientific and engineering fields. In these problems, we have a system defined by a set of independent parameters. The behavior of the system can be determined by changing these parameters producing a set of tasks which can be computed independently. Depending on the size of the parameter space, the number of tasks can be very large. It has been shown that the grid approach is very efficient in dealing with these kinds of problems[10,11,12].

3. Designing organization grid

Expertise is considered to be the main asset in any organization. Many scholars believe that more than 95% of asset of advanced organizations is human resources[11]. In order to manage the human resources and expertise of an organization optimally, tasks and jobs should be distributed equally and monotonically. But expertise and people are not distributed proportionally in large cities. At the same time the job demand is high in some parts of organization, leading long queues and thus jobs may not be carried out on time.

One of the most important processes of human resource management is recruiting work force. Nowadays, due to requirement of experienced human force, we should know the applicants along with their potentilities. Thus human resource management should make possible the forces be trained on new technologies. A complete list of work forces available are needed to analyze and extract the data in the shortest time [5]. The man difficulty in HRM can be listed as: Expert employment, salary calculation and payment, the system of reward and benefits, allocation of tasks to experts, task scheduling, human resource training and promotion, resource classification, record maintenance and managing sub-tasks.

Expert grid as a new grid to distribute task demands optimally to experts is introduced. The main goals expert grid are performance assessment, recruit management, employment, promotion, allocating appropriate salary and benefits, removing long queues of customers, decreasing work load of some of experts, removing distance between organizations and departments in different cities, increasing efficiency and decreasing costs by using infrastructure of world-wide network. Figure 1 illustrates the architecture of expert grid. expert grid involves three main subsystems: education and promotion of human resource, task scheduling and employment of human resources. Major parts of education and promotion of human resources are expertise, Reputation, trust and minor parts include salary, rewards, interests and performance assessment. Major parts of task scheduling are performance assessment, sub-tasks management, task classification, keeping records,

salary, rewards and minor parts include expertise, reputation and trust major parts of human resource employment and recovery are resource classification and record keeping, trust, reputation and expertise. These parts should be managed in hardware of computer networks on the basis of existing tools. Since the relation between these parts and hardware are hierarchical, the suggested grid has been organized on the basis of layers.

Figure 2 displays the layers of organization grid. The lowest layer is infrastructure. It includes information transfer, security, data resources and storage. The second layer is middleware layer that includes task scheduling, sub-tasks management, performance evaluation, salary and rewards, education and promotion, trust and reputation, employment, methods and principles, quality control, quality guaranty, preventive action and corrective action. The third layer is management layer that includes tasks, human resources and quality. And the interface layer is the highest layer that includes bylaws, management, expert, and customer.

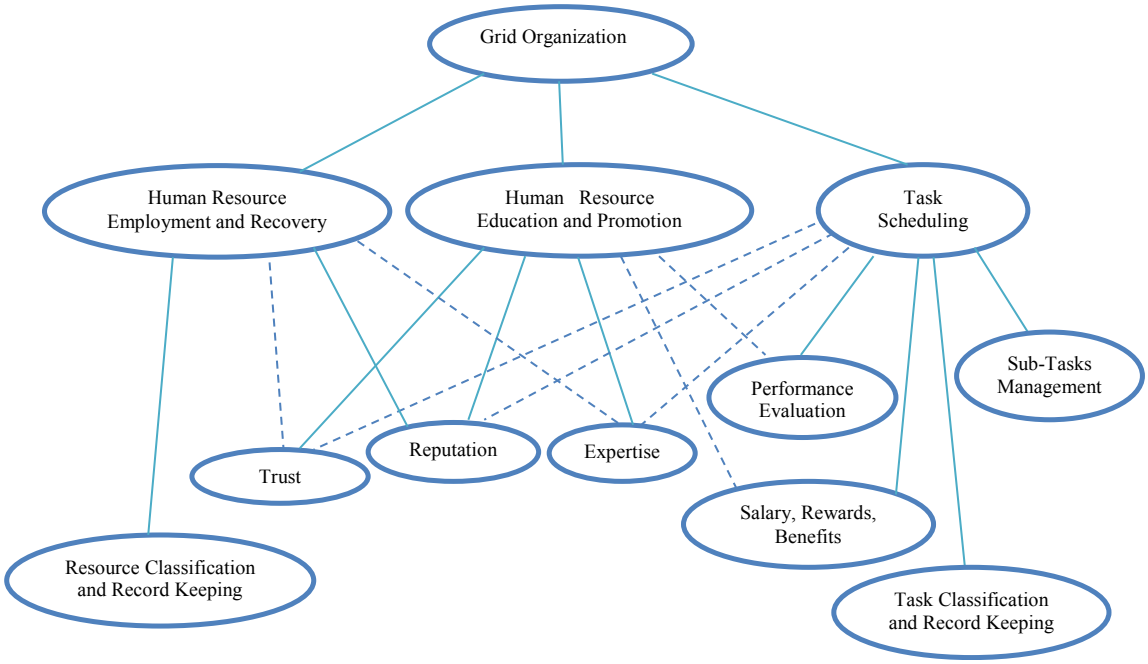

Fig.1. architecture of organization grid

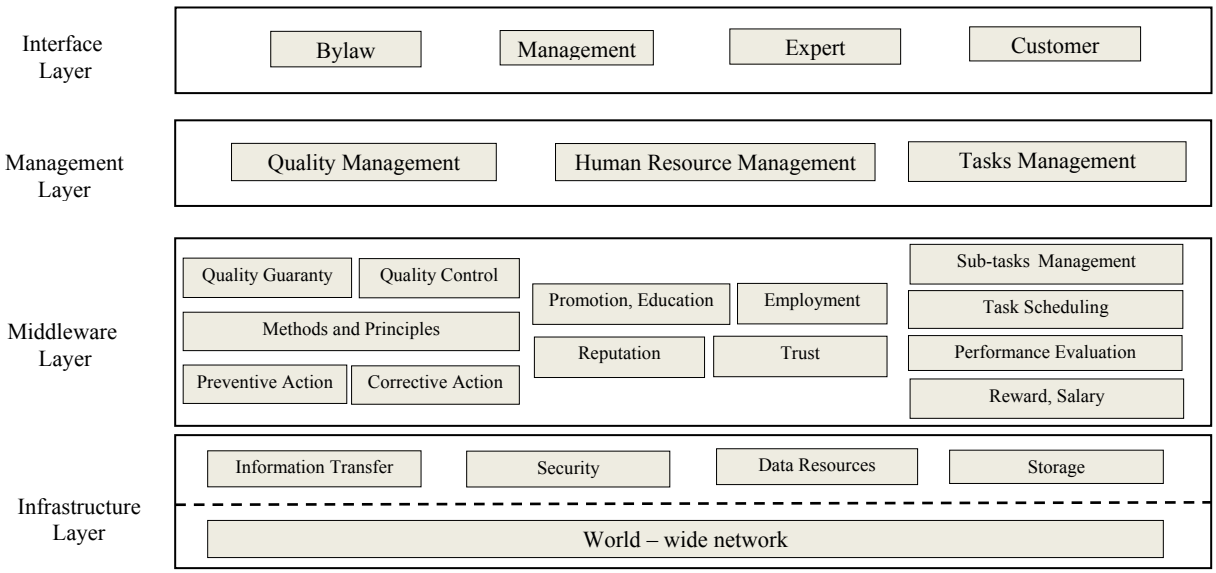

Fig.2. layers of organization grid

The advantages of an expert grid are as follows: balancing workforces and demands, an increase of efficiency and productivity, customer satisfaction, increase of the speed of organization operations, using all

of the expert residing in other cities, removing the long queues of customers, exchanging human resources expert between organizations, decentralization of human resources expert from capital of provinces, facilitating the education and promotion and assessment of expert human resources. The disadvantages of the expert grid are cost of initial implementation and educating user.

4. Conclusion

Now a day, everything in the world is changing fast and the organization can stay alive if they can move along with to date technologies. Since human resources are the most important asset of any organization and also wasting these resources for daily works leads a reduction in efficiency of the organization. Another problem may be decreasing the productivity of organizations is the lack of balance between expert human resources and work demand. To overcome to these problems, a new grid name expert grid, is designed in this paper. By implementing this grid, human resources will be managed optimally and works will be distributed proportionally leading a better quality of life.

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