LITERATURE REVIEW

The development & growth of distributed system & exponential growth of internet and widespread popularity of world wide web has created the possibility of education being imparted on much larger scale and has led to new avenues for distance education. Existing computer based evaluation mechanisms, such as Web Based Testing, rely principally on the client-server model. Such mechanisms usually do not scale well and also do not fully support features like: evaluation of subjective questions, delivery of dynamic content, and off-line examinations. These features are extremely desirable for distance evaluation and there is a need for alternate ways of designing such applications. This technique can be implemented in a distributed distance-learning environment, which allows students or instructors to login from anywhere to a central server in an education center while still retaining the look-and-feel of personal setups. Many Universities, college, institution have started their online courses along with their regular in house courses.

2.1 Existing schemes:
Most of the present day Internet based evaluation is web-based and employs the client-server paradigm. It uses HTML-forms for user interface, with either Common Gateway Interface (CGI)-Scripts or Java-Servlets for back end processing. The students download the questionnaire as a web page and the answers are submitted back to the server. This is essentially the pull-model of distributing the information the second Internet based model uses java-applets as the front-end for question paper. This too follows a similar mechanism as the previous case except that using Java gives more flexibility to the examiner in choosing the type of content. With the need for providing multimedia content, multimedia support languages (e.g. flash scripting language) are too being used to provide front-ends. A component based approach, using Java-Beans, in building Internet based evaluation system. The rapid growth of the Internet and intranets supports the infrastructure necessary for computer based testing (CBT). CBT has been in vogue for quite some time now. For example the Graduate Record Examination (GRE) has started using CBT for its evaluations. This approach presents several advantages like provisions for instant scoring; reduced overall test timings etc. and the students can take their examinations throughout the year. Additionally the students are presented with the questions in an adaptive manner i.e. a question is picked from the question bank in a random manner and the
next question that is picked from the bank is determined by the correctness of the response to the previous question by the student. Such a scheme can be used for distance evaluation too, incorporating it to existing schemes. But, as the interactions are remote, it has disadvantages in the form of slow response-times.

The parallel growth of sophisticated computer programming and powerful computers offers new possibilities in testing, such as Computerized Adaptive Testing (CAT), where the responses of the subject dictate the nature of the test items to be presented.

2.2 Extending Existing Distance Evaluations Schemes:
We will now highlight the extensions that are desirable in the distance evaluation systems:

2.2.1 Push Model: In some cases there is a need to send the question paper to the examinee at a time as decided by the examiner. Such a scenario also arises in a case where a number of students are to be evaluated simultaneously for the same set of questions. Most of the paper-based testing methods prevalent today follow this model.

2.2.2 Variety of delivered contents: The use of electronic media for information dissemination has Mobile Agent Based System for Distance Evaluation it possible to present the questions using dynamic content in form of audio, video-clips, or multimedia. It will be desirable to support such rich content in the question-paper.

2.2.3 Subjective questions: The students may be required to provide answers that are Objective, written text or involve some graphical schematics. All of these cannot be automatically evaluated and would require manual corrections. The present day on-line Systems don’t have a provision for these.

2.2.4 Off-line examinations: The paradigm followed in these schemes is client-server and the students have to remain on-line for the duration of test. For remote interactions, this can be achieved either by opening a socket connection which remains alive during the entire duration of examination, or by opening a socket connection for every request by the client.

2.2.5 Adaptive Questions: It will be desirable to build adaptive tests wherein questions of various level of difficulty are offered to the candidates in dynamic order. This order is determined by the student’s response to the previous set of questions. Given the limited number of currently available resources, work must be done and some technique should be developed which implements an effective and appropriate means for student evaluation of teaching in
distance education courses that is useful and beneficial for all stakeholders student, faculty, and administration

We have proposed the use of Mobile Agents for effective structuring of distance evaluation. Mobile Agents are autonomous and dynamic entities that can migrate between various nodes in the network. They offer many advantages over traditional design methodologies like: reduction in network load, overcoming network latency and disconnected operations. By using Mobile Agent Framework there are number of advantages of this system.

2.3 REFERENCES


The aim of the ANSA Work package on Scripts and Mobile Agents is to promote the evolution of open scripting and agent technologies for programming the Internet. This presentation begins by introducing the world of scripts and agents, its motivations and research concerns.


Mobile agents are programs, typically written in a script language, which may be dispatched from a client computer and transported to a remote server computer for execution. Several authors have suggested that mobile agents offer an important new method of performing transactions and information retrieval in networks. Other writers have pointed out, however, that mobile agent introduce severe concerns for security. We consider the advantages offered by mobile agents and assess them against alternate methods of achieving the same function. The individual advantages of agents do not represent an overwhelming motivation for their adoption; the creation of a pervasive agent framework facilitates a very large number of network services and applications.


The word ‘agent’ is currently in vogue in the popular computing press and within the artificial intelligence and computer science communities. This provides the reader with a brief overview of what an agent is and of three key agent application areas.


This paper describes applications of computer network technologies to testing and evaluation; reviews related research on computer-assisted testing; and introduce the
analysis, design, progress-to-date, and evaluation of the Computer-Assisted Testing and Evaluation System. Technical implications of the study are also discussed.

We study the distributed infrastructures required for location-independent communication between migrating agents. These infrastructures are problematic: different applications may have very different patterns of migration and communication, and require different performance and robustness properties; algorithms must be designed with these in mind. To study this problem we introduce an agent programming language – Nomadic Pict. It is designed to allow infrastructure algorithms to be expressed as clearly as possible, as translations from a high-level language to a low level.

Interest in network-centric programming and application has surged in recent years thanks to the exponential growth of the Internet and wide spread popularity of WWW. In response, new techniques, languages and paradigms have evolved to facilitate the creation of such application. One of the most promising the paradigm and implementation of distributed system. A mobile agent is program that moves around a network and can communicate with its environment and other agents. Possible application for mobile agents includes network management, information retrieval, distributed simulation, electronic commerce, and mobile computing.

A mobile agent is a software agent that has the ability to transfer its program code, data and execution state across a network to a remote computer for execution. In this paper, they present the design and development of a mobile agent based registration system (MARS) for subject registration in an academic environment. MARS is written in Java. Its mobile agent platform is provided by Aglets from IBM. The mobile agents, representing the students and administrators, are dispatched to a remote server for subject registration. Subject registration is conducted via bidding to allow prioritization of student choices. Bidding exploits the mobile agents’ intelligence in decision-making based on environmental conditions. Comparisons between a traditional web based system and MARS show that the mobile agent approach has the advantages of disconnected
computing, reduced network communication overhead, dynamic adaptation to changes and robustness.

In today’s information society, users are overwhelmed by the information with which they are confronted on a daily basis. However, for subscribers of mobile wireless services, this may present a problem. Wireless devices are connected via wireless networks that suffer from low bandwidth and also have a greater tendency for network errors. Additionally, wireless connections can be lost or degraded by mobility. The mobile agent technology offers very promising solution to this problem. Mobile agents can migrate from host to host in a network of computers. Their mobility allows them to move across an unreliable link to reside on a wired host, next to or closer to the resources that they need to use. Furthermore, client-specific data transformations can be moved across the wireless link and run on a wired gateway server, reducing bandwidth demands.

This paper provides the specification of a mobile electronic voting system (MEVS) using Mobile UML. We also introduce a new platform for the management of mobile agents that supports security and fault tolerance. The platform is used to develop the MEVS. Using the platform’s APIs, other mobile applications can be efficiently developed and deployed on the Internet.

In this paper mobile agent technologies received wrong attention. Partially because of this, the technology is still too premature. Though, software mobility is a far too fundamental structuring abstraction to be considered useless. Our conjecture is that this concept can be applied in larger scale once web service architectures become an Internet commodity.

Many insurance companies use heterogeneous information systems, with different means of storing and using data, hence data must be exchanged manually between companies when dealing with claims.

JADE was a test case for a simulation infrastructure in support of training and experimentation developed by FFI. An overview of the joint tactical training prototype
capability established for JADE is given. It consists of three main parts; a distributed simulation system, a command and control system and tactical data links, and a voice communication system. A brief outline of the experimental training event is given, and both operational and technical experiences are discussed.

This paper analyzes the security attacks on mobile agents by malicious hosts and seeks to address some of these problems by proposing solutions based on public key authentication techniques and cryptography. They develop a performance model in order to tune the parameters of execution environment to meet the desired level of performance and security.

Mobile computing allows users to compute and access information from anywhere and at anytime. Mobile elements are unreliable. Their network connectivity is mostly achieved through low-bandwidth wireless links. Furthermore, connectivity is frequently lost most of the time these severe restrictions have a great impact on the design and structure of mobile computing applications and this leads to the development of new software models. These new software models are static and require a priori set up and configuration.

Mobile agents programming paradigm is an emerging approach for distributed computing, extremely suitable for mobile systems because of its adaptability to exploit the available resources. Optimization of Mobile Agent’s applications and system configuration are relevant above all when we deal handheld devices with limited capabilities.

The paper focuses on the methods of developing the application of network and the network integration techniques. The construction of communications interface between field control network and Internet, the accomplishment of the information exchange between web database and field control network, and the technique of real-time alarm system on Web are discussed.

Multi-Agent systems are being more and more widely used to address many distributed combinatorial real-world problems. One such problem is meeting scheduling (MS) that is characterized essentially by two features defined from both its inherently distributed and
dynamic nature. In addition, in real world applications, users usually have conflicting preferences, which make the search for an optimal solution very hard. However, the majorities of the existing works on MS tackle it as a static problem, allow for the relaxation of any constraints and do not deal with achieving any level of consistency.

This tutorial shows how to create simple JADE agents and how to make them executing tasks and communicate between each other. JADE is completely written in Java and JADE programmers work in full Java when developing their agents.

A new differential evolution (DE) algorithm, JADE, is proposed to improve optimization performance by implementing a new mutation strategy “DE/current-to-pbest” with optional external archive and updating control parameters in an adaptive manner. The DE/current-to-pbest is a generalization of the classic “DE/current-to-best,” while the optional archive operation utilizes historical data to provide information of progress direction. It is thus helpful to improve the robustness of the algorithm.

Despite the extensive use of eLearning systems, there is no consensus on a standard framework for evaluating this kind of quality system. Hence, there is only a minimum set of tools that can supervise this judgment and gives information about the course content value. This paper presents two kinds of quality set evaluation indicators for eLearning courses based on the computational process of three known metrics.

Mobile Agents is a new paradigm for distributed computing where security is of paramount importance to gain widespread acceptance for this platform in a large scale distributed environment.

[22] Dag Johansen Robbert van Renesse Fred B. Schneider
The TACOMA project is concerned with implementing operating system support for agents, processes that migrate through a network. Two TACOMA prototypes have been completed; this paper outlines our experiences in building and using them. A mechanism for exchanging electronic cash was explored, as well as agent-based schemes for scheduling and fault-tolerance.
With maturing technology agents are now a viable choice for distributed computing, also for systems with requirements on dependability and scalability. Agent platforms provide common services to applications developed as agents. Focus of the evaluation is the important properties of performance, security and scalability. We conclude that all platforms perform very well, but that platform architecture heavily influences the performance.