A Novel Approach for Web-based Conference Management System

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Abstract

In the last few years, several Web-based conference management systems have been developed and used by many international conferences. However, almost all of them were built on stand-alone Web servers. Their fault-tolerance, scalability and ability of responding to dispersed users are limited. Aimed at addressing these problems, this paper presents a novel approach for web-based conference management system, whose fault-tolerance, scalability and ability of responding to dispersed users are greatly enhanced by Service Oriented Architecture, that aims to achieve interoperability of remotely or locally located homogeneous and heterogeneous applications by utilizing reusable service logic.

Keywords

Conference Management System, Service Oriented Architecture, Web Servers

1. Introduction

Service-oriented Architecture for Web-based Conference Management System is to help the semantic enrichment of the information search and usage process and to allow for adaptive support of user centric learning activities. SOA can provide better applicability, reusability and sharability of adaptive web-based systems. In other words, it aims to provide flexible information access, presentation and update to a broad range of users (individual and groups) in a personalized way within the context of pursuing a user's goals and performing tasks. Web-based Conference Management System lies in the modularity of the architecture and the openness to interoperate with other applications or components.

Conference material may be distributed among different educational servers – specific Web applications running on physical servers and responsible for management and administration of, as well as access to the material. Teachers and learners access the conference material from the client side.

We proposed a novel approach for web-based conference management system based on service oriented architecture, that aims to achieve interoperability of remotely or locally located homogeneous and heterogeneous applications by utilizing reusable service logic. The rest of the paper is organized as follows: Section 2 reviews related work; Conference information is presented in Section 3; and in Section 4, we share the architectural design for web-based conference management system and system implementation; Sections 5 shows the test performance report of web services and Section 6 concludes with a summary of our achievement.

2. Background

A variety of approaches [1 - 8] have been proposed for educational assessment in past decades. For example, A prototype system has been implemented and used to facilitate the management of submissions and paper reviews of the conference [1]. The researchers in [2] describes how to turn the organization-centralized software to a large granularity application service. Researchers has developed a complete suite of integrated tools to support your planning, design, and implementation efforts during the deployment of new network conference scheduling of an existing network infrastructure [3]. This research proposed a total solution toward virtual conferencing. We use a mobile server/storage pre broadcasting technique, as well as a communication network optimization algorithm, which is based on a graph computation mechanism [4].

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3. Conference Information

Conference information relating to the conference is set by the administrator interface. It comprises of

- Conference Name – The name of the conference (e.g T**he International Conference on Computer Engineering and Technology 2009**)
- Conference Code Name – The abbreviation for the conference (e.g., ICCET 2009)
- Conference Date – The date(s) of the conference
- Conference Location – The location of the conference (e.g., Reviewer Hotel, Singapore)
- Conference Hostname – The name of the sponsoring organization (e.g., Indian Pattern Recognition Society)
- Logos for Conference – An image file of the logo of the conference.

CMS is designed to perform the following tasks:

- Collection of expressions of interest and contact details
- Electronic submission of papers and author details
- Electronic bidding by reviewers for papers
- Collection of reviewer comments and recommendations
- Emailing letters of acceptance and rejection
- Allowing authors to submit revised papers after reading reviewers comments
- Extracting the final papers to the web, CD-ROM, or print publication

4. Architectural Design and Web-based Conference Management System Implementation

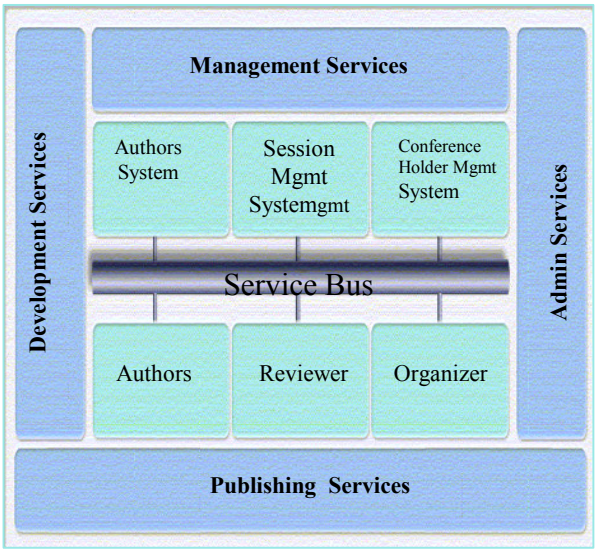

Fig 1: Service Oriented Architectural Design for Web-based Conference Management System

User

Users are generally the authors who will submit papers to the conference. The user needs to register with the system to create a login account. The password is emailed to the email address supplied. After receiving a password, they can login to the system and submit papers.

Reviewer

Reviewer accounts are created by the administrator (chair). Once the accounts are created, an email containing the reviewer login name and password will be sent to each reviewer. Then, the reviewer is ready to start bidding or reviewing the papers when the respective phase is enabled.

Administrator

The Administrator or conference chair is the manager of the CMS system. The Administrator is responsible for:

- Changing the phases manually in accordance with the proposed phase dates
- Setting up reviewer accounts
- Assigning papers to appropriate reviewers according to their preferences

- Accepting and Rejecting papers
- Sending formatted and bulk emails to users to keep them informed on the conference status.

Web Interface

The entire user Interface contains the login, signup and Functional pages.

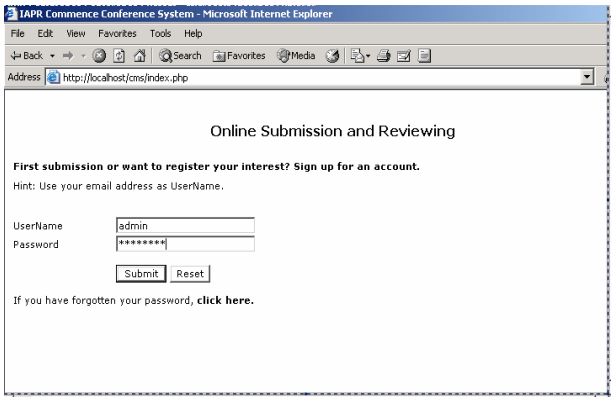

Fig 2: Online Submission and Reviewing

Paper Submission

Paper submission allows the registered users to submit their paper proposals. The users are able to submit and edit their papers during this phase.

Behavior of Paper Submission Phase:

- The user may submit a new paper or edit a submitted paper
- The user may withdraw papers
- The reviewer accounts are not active in this phase although they can be set up.

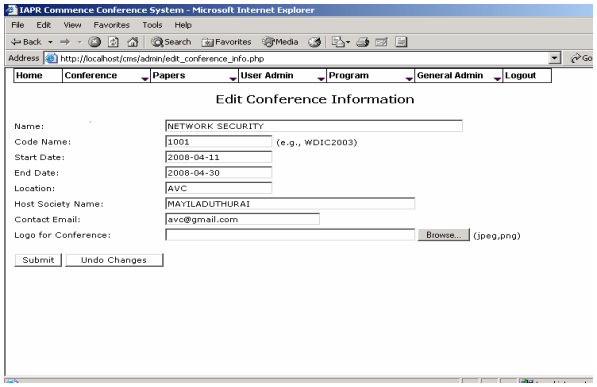

Fig 3: Submission and Reviewing

Reviewer Bidding

Reviewer bidding allows the reviewer to indicate (bid on) which papers they wish to review or not to review. The administrator or chair can skip this phase if he wishes to assign papers directly.

Behavior of Reviewer Bidding Phase:

- The user is prevented from submitting and editing papers
- The reviewer indicates preferences on submitted papers
- The administrator checks the reviewer preferences and assigns papers to the most appropriate reviewers.

Reviewing

Reviewing allows the reviewers to make reviews on papers assigned to them.

Behavior of Reviewing Phase

- The user is prevented from submitting new papers and editing submitted papers
- The user can see how many reviews have come in but cannot see any decision on their papers
- The reviewer makes their reviews on the papers assigned to him.
- The administrator views the reviews and decides to accept or reject the paper. After the paper is accepted or rejected, emails are being sent to inform authors of the decision.

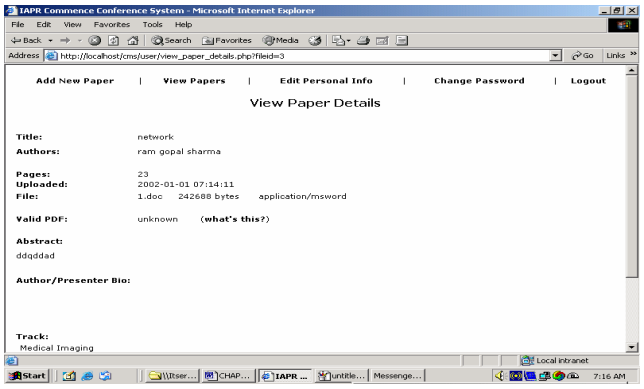

Fig 4: View Paper Details

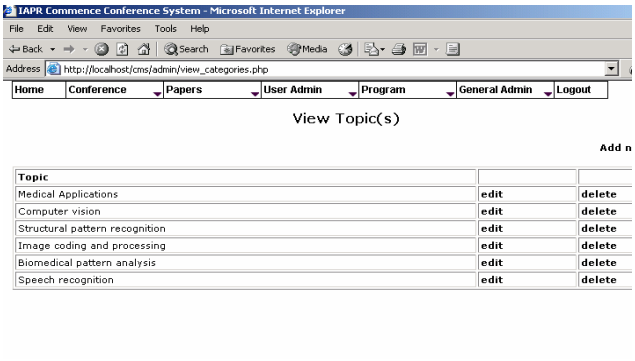

Fig 5: View Topics

Final Paper Submission

Final paper submission allows the users to submit their final accepted papers for the conference.

Behavior of Final Paper Submission

- The users can see reviewer comments and the final decision on their papers
- The users may submit a revised copy of their accepted papers for presentation at the conference and correct details such as paper title and author precedence
- The reviewer accounts are inactive

The administrator can extract all the revised papers and publish them to the web, CDROM, or print. They can also print name tags for all the participants.

5. Web Service Performance

We analyzed the performance such as CPU load utilization, network traffic and the bandwidth.

Table 1: Average Click Time of 10 users

URL No.	Clicks	Errors [%]	Time Spent [ms]	Avg. Click Time [ms]
1	28	0.00	442	16

Table 2: Clicking Time of Each User's

User No.	Clicks	Hits	Errors	Avg. Click Time [ms]	Bytes	kbit/s
1	4	3	0	14	3,882	726.85
2	4	3	0	15	3,882	699.24
3	4	3	0	18	3,882	568.41
4	4	3	0	21	3,882	492.83
5	4	3	0	16	3,882	656.27
6	4	3	0	14	3,882	746.05
7	4	3	0	15	3,882	712.65
8	4	3	0	15	3,882	691.32
9	4	3	0	14	3,882	735.94
10	4	3	0	15	3,882	677.46

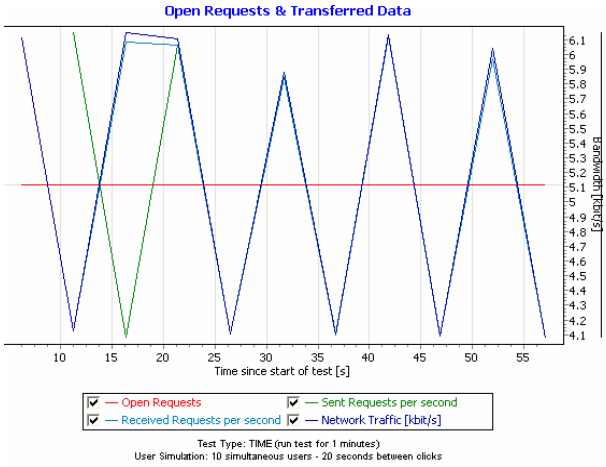

Fig 6: Request and Tranfer of data NetworkTrafic Analysis

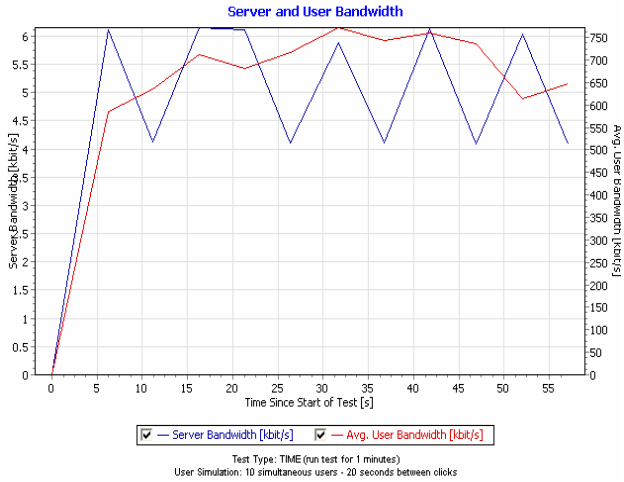

Fig 7: WebServer and User Bandwidth Analysis

6. Conclusion

This paper provides a conference management system for the academic society. This conference management system can reduce much human power for holding conference via an automatic mechanism. It also supplies many tools for different members, including administrator, reviewers and authors. The Conference Management System is the front end to handle the processes of conference organization. The contributions of this paper are summarized as the following:

- Reducing the overloading, when the conference holding.
- A complete conference system was established according to the conference holding procedure.
- The user interfaces are friendly for the tasks of each member in the conference scheduling.

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