Web Based Single Sign On Across Open Cloud

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---Abstract---
With an increase use of mailing services, single sign-on applications are being implemented by ample amount of mailing services. In this research, efforts have been taken to implement SSO scheme for Gmail, yahoo, hotmail and customized mail. User no need to login multiple times in order to access services of Gmail, yahoo, hotmail and customized mail. If a user has accounts on Gmail, yahoo, hotmail the overload of authenticating each time each account increases. To overcome this, the concept of web based single sign on has been implemented in this system. User can read, compose, send mails, send SMS and maintain block list. This leads to decrease in overhead to remember multiple usernames and passwords and thus ensures time saving by avoiding multiple logins.

Keywords - *SSO, Authentication, Web services, Web APIs, Open Cloud*

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I. INTRODUCTION

Mailing has been the essential part of business world since decades. Millions of mails are sent and received across the network per day. Among the well known email service providers are Gmail, yahoo and hotmail. The resulting analysis has shown that it is not enough for the user to have a single service account. All three services yahoo, Gmail and hotmail have given their best in term of secured web mailing services. It has indeed become a necessity to for many IT professionals and business tycoons. To have all account on these services, but here the question arises that how difficult it is to switch from one service to another for accessing its services. Many complexities arises such as many times the user uses the authentication service that many times the private data is send across the network, which increases security threats. The solution to this query resulted in adoption of this system. SSO is a secure simple solution for multiple authentications. Even though SSO is not a new concept introduced, SSO is carried out differently depending on the application which has the ability to get all access of more than one email accounts. It provides the user with single login for accessing multiple email accounts at once. In this system, we have provided the SSO methodology which provides a means of single authentication for accessing Gmail, yahoo, hotmail email services in one go.

II. Background

2.1 Single sign-on

In today's world of complex distributed systems, we see a lot of applications being used by organizations. Due to the increasing number of applications, management of user information has become a nightmare. Hence, a terminology called Single Sign-On (SSO) was introduced. As the term suggests, it is a single sign-on for all the applications in an organization. A sign in to one is considered the same as a sign in to all. Logging in to one would mean a login to all. Single Sign-on scheme has proven a boon for the users accessing multiple applications.

For SSO to be implemented there needs to be a centralized authentication scheme. This scheme authenticates the user according to its own data store (which may be a database, LDAP, or any kind of password repository). It is responsible for signing in the users to all their associated applications/systems after authentication so that the user need not log in to each application individually. This centralized authentication scheme should also logout the user from all the applications on a single user logout SSO systems may also be used to implement access controls. Systems using access controls with SSO will also comprise a repository of user access profiles [i.e. information regarding which user has access to which application(s)]. After authenticating the user, such systems check user access profiles and give them SSO access to the listed application in their respective

profiles. The users are not given access to SSO system-integrated applications that are not in their respective access profiles.

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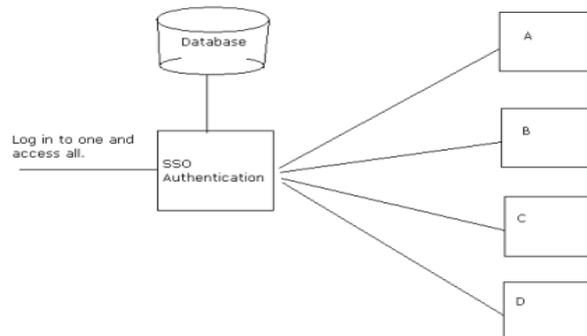
Fig. A. SSO Scheme

2.2 Open Cloud

The concept of delivering software as a service rather than a product you buy and install locally on your computer has been with us a long time now. In recent years, for many types of application, such as sales-force automation, web servers, games, email and other office applications, it has become a major route to market. By utilizing broadband access, data and server farms located at strategic hubs on the internet, it is possible to use a software application, access, edit and save data, view and review content, communicate with colleagues etc – without knowing or caring where the application is hosted or where the data is saved. The concept has tremendous value to the consumer and business-user alike: no more concerns about server and network capacity, back-up, about failing disk drives, about software installation, configuration, product license keys and upgrades. Cloud delivers great economies of scale, tremendous elasticity in terms of spend commitment and the computing resources you can turn on and off as your business requires.
Some of the benefits of using cloud are:

[1]   Security: There are plenty of security risks when using a cloud vendor but reputable companies strive to keep you safe and secure.
[2]   Simplicity: The cloud solution makes it possible to get your application started immediately, and it costs a fraction of what it would cost to implement an on-site solution.
[3]   Knowledgeable Vendors: companies like Amazon, Google, Microsoft and Yahoo have been good vendors because they have offered reliable service, plenty of capacity and u get some brand familiarity with this well-known names.
[4]   More internal resources: By shifting your non-mission critical data needs to a third party your IT department is freed upto work on important, business-related tasks. You don't have to add more man power and training that stem from having to deal with these low-level tasks.

III.   Web APIs

There are number of different Application Programming Interfaces (APIs) out there and which one you use will depend on your programmer's skills and which company you use for cloud service. An API is a set of programming instructions and standards for accessing a web based program. Software companies release their APIs to the public so that other software developers can design products that are powered by its service.
For example, Google has its own API so that website developers could more easily access information maintained at Google website. By using Google's API a third-party website can directly link to services on Google site. APIs allow one program to speak with another, they are not user interfaces. Using APIs, programs can speak to each other without the user having to be involved. For instance, when you use services at Yahoo and enter your credentials, Yahoo uses an API to send your user credentials to a remote application that verifies whether user information is correct as a user. As a user all you see is the place to enter your credentials, but behind the scenes APIs were getting the job done.

IV. Overview

In this system initially user needs to register with the SSO system providing all the user information and credentials of all the services for the authentication purpose. Now, the user is ready to access SSO account. Now, whenever the user logs in, he can access his Gmail, Yahoo, Hotmail and Customized mail accounts with this single log in. The flow of the activities performed on logging-in is shown in the figure B.
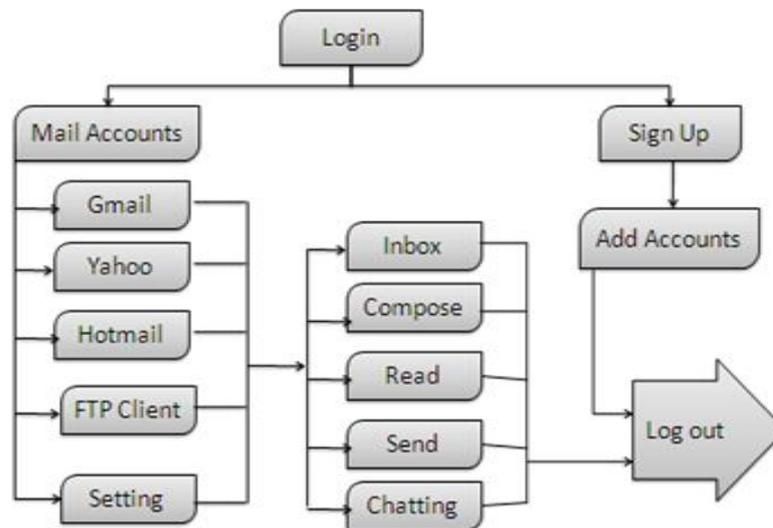

Fig. B. Flow of the Web Based Single Sign On System.

In this system research, we make the following contributions:
- This research provides a completely java-based application for single sign on mailing system for Gmail, Yahoo, Hotmail and Customized mailing services using the mailing APIs.
- The system provides a means of accessing multiple email services (Gmail, Yahoo, Hotmail and Customized mailing services) with a single log in. User logs in once and gains access to all applications without being prompted to log in again at each of them provided that he/she has registered with our system.
- Memorization of all or a part of the user's credentials by the system so they don't need to re-enter them on their next visit (for example, login and password).
- Once the user have logged in, he/she can perform the following operations on the system: (1) Compose mail, (2)Read Mails, (3)Send Mails, (4) Maintain Group Contacts, (5) Maintain block list, (6) Send SMS, (7) Upload and download files/Attachment files with mails.
- The system provides a Single Sign-off in this system i.e., a single action of signing out terminates access all mailing services.
- We tested this system by doing a live performance on the system by registering to system and adding the existing Gmail, Yahoo, Hotmail and customized mail accounts.

To accomplish this goal, following are the necessity conditions:
[1] User should have an account with atleast one mail service among Gmail, Yahoo, Hotmail or Customized Mail
[2] User should have internet connection to use this system.
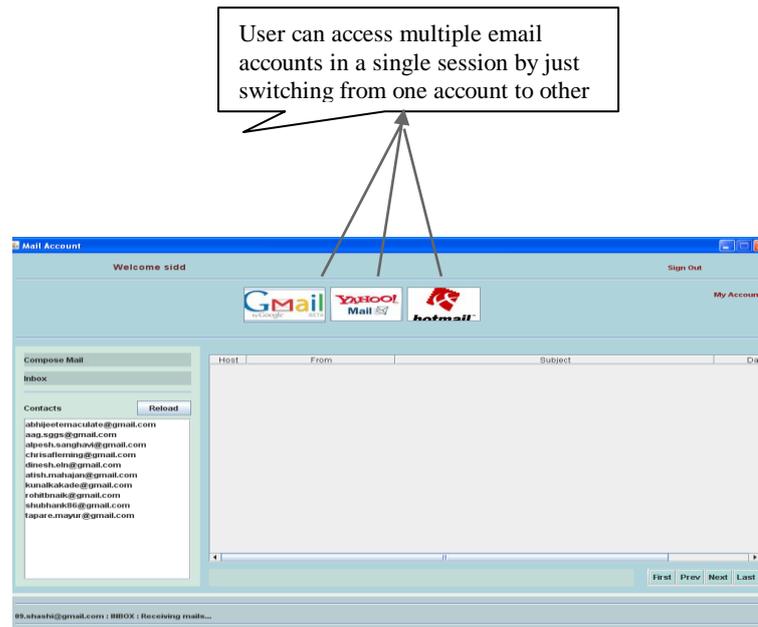
Fig. C. SSO for mailing services.

V. Related Work

There are various existing mailing systems which provide the all basic functionalities and fulfill almost all the requirements of the any user: (1) Gmail (2) Yahoo (3) Hotmail. The major drawbacks of these systems are: (1) Need of multiple browser to access multiple emails accounts. (2) Different chatting applications are needed to install in your machines in order to chat, e.g.: yahoo messenger, Google talk. (3) Small or medium scale companies are dependent on the third party application for accessing their emails. Some systems also provide the common platform for accessing the multiple mails are: (1) Meebo; (2) Nimbuzz; (3) Thunderbird. The major drawbacks of these systems are: (1) Meebo provides single sign on for mailing system but provides only a single functionality of messaging and chatting rooms; (2) Nimbuzz is a mobile application which provides accessing multiple mailing services with single log in but only for chatting application. The limitations of the previous existing systems which are overcomes by our system are: (1) This system provides not only chatting and messaging functionalities but also complete platform for accessing mails; (2) With this system chatting without any chatting application is possible, i.e., we do not need Google Gtalk for Gmail chatting; (3) Dependency of any small or medium scale companies on third party is reduced; (4) Enables user to transfer bulk amount of data.

VI. Conclusion

Thus looking back to the existing systems this system provides the user with efficient way for accessing the multiple email accounts without worrying about handling multiple account credentials. System have ample amounts of strengths but one needs to take in account the security of the information as we play with the emails which is the private information. However, the security of information totally depends on the services we have implemented in the systems. Gmail, Yahoo and Hotmail has proved to be secured cloud services over the past years and user therefore can be stress free regarding the security of the system.

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