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Use SIP MESSAGE method for shared web browsing

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Abstract

Shared web browsing allows a group of people to visit the same web sites. Participants announce a list of URLs, which the recipients may then choose to visit. We choose to use the SIP MESSAGE method to convey the information.

1 Introduction

In shared web browsing, a "leader" conveys a list of URLs to the "followers". The leader may generate the list simply by browsing web pages, by running a timed script, e.g., for a presentation, or by explicitly entering URLs. The "follower" receives these requests and can, with appropriate authentication and/or approval, visit these same URLs. The same entity can function simultaneously as a leader and as a follower. It is useful to integrate this capability with

other media types, for example within a conference.

Current browsers do not offer this capability. Thus, a browser controller needs to be used to communicate between the participants of the conference and to control the web browser. The browser controller needs to handle three tasks, namely to detect when the leader browser changes URLs, to control the web browser and to exchange the URLs. For the first two tasks, different browser may use different mechanisms. For example, we may use ActiveX [1] to communicate with the Internet Explorer and use DDE [2] to communicate with the Netscape. For communicating URLs, using TCP to connect multiple browser controllers is an option but is not flexible. We observe that the SIP MESSAGE method [3] already provides a mechanism to exchange text. Using SIP MESSAGE method with the content of the MIME type text/uri-list [4] offers a simple and low-bandwidth solution for exchanging URLs.

1.1 Conventions of This Document

In this document, the key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALLNOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" are to be interpreted as described in RFC 2119 [5] and indicate requirement levels for compliant CPL implementations.

2 Architecture

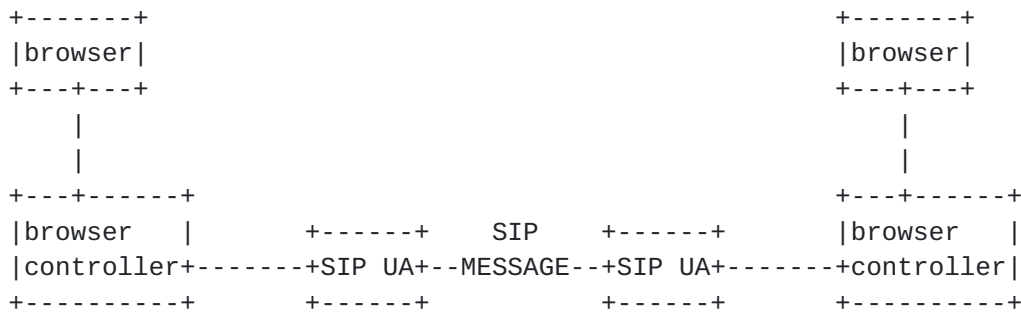


Figure 1: Architecture of shared web browsing

Figure 1 shows the architecture of the shared web browsing that uses the SIP MESSAGE request to exchange URLs. In this architecture, the SIP UA communicates with the browser controller by function call or TCP socket. The browser controller uses ActiveX, DDE or some other mechanisms to control the web browser.

3 Use SIP MESSAGE method to exchange URLs

The Content-Type for the MESSAGE request is text/url-list ([RFC 2483](#) [4]). It contains a list of URIs, one per line. When a SIP UA receives a MESSAGE request with the Content-Type header as text/uri-list, the SIP UA sends the URLs in the content to the browser controller.

4 Shared web browsing session

The SIP Instant Message Sessions document [6] has defined a way to establish an instant message session. The same approach can be used to establish a shared web browsing session. The shared web browsing session uses 'webshare' as the media type in the SDP [7] 'm' line. The SDP 'm' line for shared web browsing could be:

```
m=webshare 5060 sip sip:foo@foo.com
```

5 Security consideration

Implementations SHOULD provide users with the ability to approve each URL to be visited. Users SHOULD use appropriate authentication to ensure that MESSAGE requests originate from trusted parties. Other SIP security considerations apply [8].

6 Example usage

Example of messages are shown as Figure 2.

```
MESSAGE sip:test@128.59.19.27:5060 SIP/2.0
Via: SIP/2.0/UDP 128.59.19.251:5060
CSeq: 4 MESSAGE
Contact: sip:xiaotaow@128.59.19.251:5060
From: sip:xiaotaow@cs.columbia.edu
Call-Info: http://www.cs.columbia.edu/~xiaotaow
Date: Fri, 19 Oct 2001 17:26:53 GMT
Content-Type: text/uri-list
Call-ID: 344413855@128.59.19.251
To: sip:test@ind.cs.columbia.edu
Content-Length: 21
```

<http://www.google.com>

Figure 2: Example messages

7 Use SIP NOTIFY method to exchange URLs

The SIP NOTIFY method is another option for conveying URLs. Compared with using the SIP MESSAGE method, which considers the URL exchanges as a media stream inside a session, using the SIP NOTIFY method considers the URL changes as events. Using the SIP NOTIFY method seems a better fit for the centralized conference model or when a browser wants to be notified when a web page has changed. For peer-to-peer exchanges as part of a session, using the SIP MESSAGE method seems a better fit.

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