SIPPING
Internet-Draft
Expires: November 30, 2002

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June 2002

Requirements for Content Indirection in SIP Messages
draft-ietf-sipping-content-indirect-01

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Abstract

Various applications of the Session Initiation Protocol (SIP) require the exchange of information between endpoints that is potentially too large to reasonably send directly in a SIP message. This Internet-Draft defines requirements for a mechanism to indirectly specify such information so that a more appropriate non-SIP channel may be used for the transfer.

1. Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 [1].

2. Introduction

The purpose of the Session Initiation Protocol [2] (SIP) is to create, modify, or terminate sessions with one or more participants. SIP is not intended as a general purpose transfer protocol in the way HTTP or FTP is. One limitation of SIP in this regard is in the use of SIP over the UDP transport. On such a transport, the size of the SIP message is effectively bounded by the MTU to avoid fragmentation. A reasonable nominal value for such an MTU would be 1500 bytes. Taking into account the potential size of routing information, a safe upper bound to use for SIP messages on the UDP transport would be 1200 bytes. Clearly this is not sufficient for carrying any arbitrary payload, though it is perfectly adequate for most session signalling.

There may be scenarios however where session related data needs to be conveyed and the given data exceeds the recommended size for a SIP message. There may also be scenarios where the session related data that needs to be conveyed does not directly reside on the endpoint or User Agent. In such scenarios, it is desirable to have a mechanism whereby the SIP message can contain an indirect reference to the desired content. The receiving party would then use this indirect reference to retrieve the content via a non-SIP transfer channel such as HTTP, FTP, or LDAP.

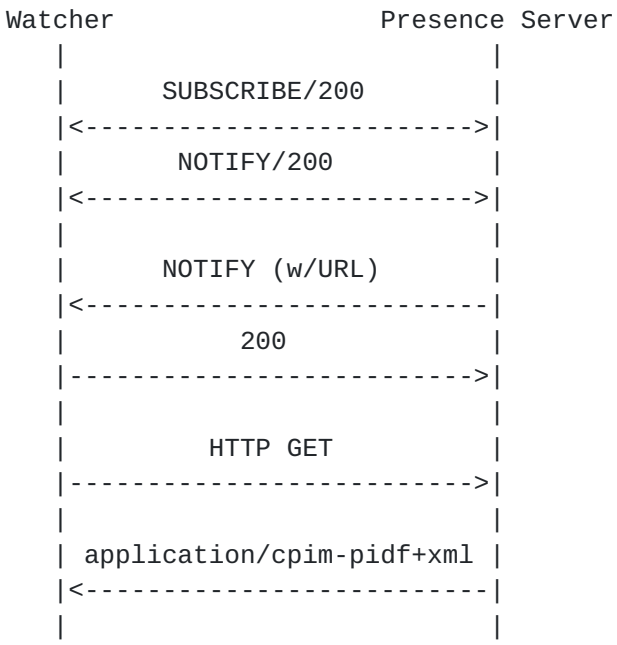
3. Example Use Cases

There are several potential immediate users of such a content indirection mechanism. These are examples only and are not intended to limit the scope or applicability of the mechanism.

3.1 Presence Notification

The information carried in a presence document could potentially exceed the recommended size for a SIP (NOTIFY) request, particularly if the document carries aggregated information from multiple endpoints. In such a situation, it would be desirable to send the NOTIFY request with an indirect pointer to the presence document which could then be retrieved by, for example, HTTP.

Example information flow for presence notification



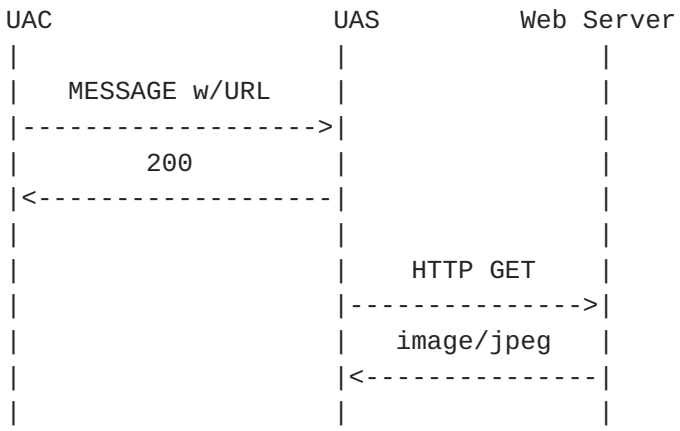
In this example, the presence server returns an HTTP URL pointing to a presence document on the presence server which the watcher can then fetch using an HTTP GET.

3.2 Document Sharing

During an instant messaging session, a useful service is document sharing wherein one party sends an IM (MESSAGE request) with an indirect pointer to a document which is meant to be rendered by the

remote party. Carrying such a document directly in the MESSAGE request is not appropriate for most documents. Furthermore, the document to be shared may reside on a completely independent server from the originating party.

Example information flow for document sharing



In this example, a user wishes to exchange a JPEG image that she has stored on her web server with another user she has a IM dialog with. The JPEG is intended to be rendered inline in the IM conversation. The recepient of the MESSAGE request launches a HTTP GET request to the web server to retrieve the JPEG image.

4. Requirements

It MUST be possible to specify the location of content via one or more URIs [3].

It MUST be possible to specify the purpose and disposition of each URL independently.

It MUST be possible to label each URL to identify if and when the content referred to by that URL has changed. Applications of this mechanism may send the same URL more than once. The intention of this requirement is to allow the receiving party to determine if the content referenced by the URL has changed without having to actually retrieve that content. Example ways the URL could be labelled include a sequence number, timestamp, version number, etc.

It MUST be possible to specify the timespan for which a given URL is valid. Applications of this mechanism MUST specify a lifetime for the URL. This may or may not be the same as the lifetime for the content itself.

It MUST be possible for the UAC and the UAS to indicate support of this content indirection mechanism. A fallback mechanism SHOULD be specified in the event that one of the parties is unable to support content indirection.

It MUST be possible for the UAC and UAS to negotiate content types when using the content indirection mechanism.

It MUST be possible for the UAC and UAS to negotiate support for URL scheme(s) to be used in the content indirection mechanism. This is in addition to the ability to negotiate the content type.

It SHOULD be possible to ensure the integrity of the URLs when they are received by the remote party.

It MUST be possible to process the content indirection without human intervention.

It MUST allow for indirect transference of content in any SIP message which would otherwise carry that content as a body.

The content indirection mechanism MUST be usable as part of a MIME multipart body. [4]

References

[1] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", RFC 2119, March 1997.

[2] Rosenberg, J., Schulzrinne, Camarillo, Johnston, Peterson, Sparks, Handley and Schooler, "SIP: Session Initiation Protocol", RFC 3261, June 2002.

[3] Berners-Lee, Fielding and Masinter, "Uniform Resource Identifiers (URI): Generic Syntax", RFC 2396, August 1996.

[4] Freed and Borenstein, "Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types", RFC 2046, November 1996.

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Acknowledgement

Funding for the RFC Editor function is currently provided by the Internet Society.