Abstract

This document defines a mechanism for SIP clients to discover SIP servers that support signalling compression. DNS NAPTR records are used for this purpose.

1 Introduction

SigComp [1] defines an architecture to compress signalling messages generated by text-based protocols such as SIP [2]. A SIP entity generates a SIP message and then passes it to the SigComp compressor. The compressor compresses the message and sends it over the network to the decompressor of the remote party. The decompressor
decompresses the message and passes it to the SIP application.

However, before the first SIP compressed message can be sent, it is necessary to discover whether or not the remote party supports SigComp and the IP address and port number (including transport protocol) where the decompressor expects to receive compressed SIP messages.

Note that a particular server might support SigComp compression for several application layer protocols such as HTTP, RTSP and SIP. Decompressors for different protocols will typically use different port numbers. Discovery of SigComp services for protocols other that SIP is outside the scope of this document, although the mechanisms described here can be trivially adapted for other protocols.

2 Terminology

In this document, the key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" are to be interpreted as described in RFC 2119 [3].

3 SigComp Discovery Using DNS NAPTR Records

[4] defines how to use DNS NAPTR [5] records to locate a SIP server. The following values for the NAPTR service field are already defined in [4]:

- SIP+D2T: SIP over TCP
- SIPS+D2T: SIP over TLS over TCP
- SIP+D2U: SIP over UDP
- SIP+D2S: SIP over SCTP

We define new values for the NAPTR service field:

- SIP+D2CT: SIP/SigComp over TCP
- SIPS+D2CT: SIP/SigComp over TLS over TCP
- SIP+D2CU: SIP/SigComp over UDP
- SIP+D2CS: SIP/SigComp over SCTP

A SIP client trying to locate a SIP server MUST follow the procedures described in [4]. If these procedures result in a DNS query that returns NAPTR records, the client can use the records with the new
service field values defined above to contact the server using SigComp. Note that after the NAPTR record is obtained, normal processing as described in [5] is followed to obtain the IP address and port number of the server. This typically involves an SRV query [6], as described in [4].

3.1 Example

Assume that a client wants to contact sip:user@example.com. Since the client uses a low bandwidth access, it wishes to use signalling compression. The client performs a NAPTR query for the example.com domain, and the following records are returned:

```plaintext
;;   order  pref  flags service  regexp   replacement
IN NAPTR 100   100   "s"      "SIP+D2T"     ""     _sip._tcp.school.edu
IN NAPTR 100   100   "s"      "SIP+D2U"     ""     _sip._udp.example.com
IN NAPTR 100   100   "s"      "SIP+D2CU"    ""     comp-udp.example.com
```

An SRV lookup of comp-udp.example.com would return:

```plaintext
;;   priority  weight  port  target
IN SRV      0        1     5062  server1.example.com
IN SRV      0        2     5062  server2.example.com
```

Note that once the IP address and the port number of the server have been discovered, SigComp provides the necessary mechanisms to exchange capabilities such as the UDVM (Universal Decompressor Virtual Machine) version or the overall memory size of the decompressor.

4 A Client Wishing to be Contacted Using SigComp

A SIP client informs its registrars about its current location using the REGISTER request. A REGISTER request allows a SIP client to provide a SIP registrar with different URIs where the user can be reached. This URIs are carried in the Contact header field of the REGISTER request.

A client that wishes to receive incoming SIP requests using SigComp compression simply adds a transport parameter to the Contact header field in the REGISTER as shown in the example below:
This document defines the following transport parameters:

- transport=comptcp: SigComp over TCP
- transport=compudp: SigComp over UDP
- transport=compsctp: SigComp over SCTP

Note that a SIPS (secure SIP) URI with a transport=comptcp will be contacted using SigComp over TLS over TCP.

OPEN ISSUE: This use of the transport parameter seems to overload the transport parameter itself. We can come up with a new URI parameter instead.

5 IANA Considerations

This document defines four new values to be added to the service field values of the NAPTR record for SIP defined in [4].

<table>
<thead>
<tr>
<th>Service Field</th>
<th>Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIP+D2CT</td>
<td>SigComp (RFC xxxx) over TCP</td>
</tr>
<tr>
<td>SIPS+D2CT</td>
<td>SigComp (RFC xxxx) over TLS over TCP</td>
</tr>
<tr>
<td>SIP+D2CU</td>
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<td>SigComp (RFC xxxx) over SCTP</td>
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