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S. Loreto
Ericsson
R. Seggelmann
T-Systems International GmbH
R. Stewart
Adara Networks
M. Tuexen
Muenster Univ. of Appl. Sciences
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**Additional Policies for the Partial Delivery Extension of the Stream
Control Transmission Protocol
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Abstract

This document defines policies for the Partial Reliability Extension of the Stream Control Transmission Protocol (PR-SCTP) allowing to limit the number of retransmissions or to prioritize user messages for more efficient send buffer usage.

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1. Introduction

1.1. Overview

The SCTP Partial Reliability Extension (PR-SCTP) defined in [[RFC3758](#)] provides a generic method for senders to abandon user messages. The decision to abandon a user message is sender side only and the exact condition is called a PR-SCTP policy. [[RFC3758](#)] also defines one particular PR-SCTP policy, called Timed Reliability. This allows the sender to specify a timeout for a user message after which the SCTP stack abandons the user message.

This document specifies two additional PR-SCTP policies:

Limited Retransmission Policy: Allowing to limit the number of retransmissions.

Priority Policy: Allowing to discard lower priority messages if space for higher priority messages is needed in the send buffer.

1.2. Conventions

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 [[RFC2119](#)].

2. Additional PR-SCTP Policies

2.1. Limited Retransmissions Policy

Using the Limited Retransmission Policy allows the sender of a user message to specify an upper limit for the number retransmissions for each DATA chunk of the given user messages. The sender MUST abandon a user message if the number of retransmission of any of the DATA chunks of the user message would exceed the provided limit. Please note that the number of retransmissions includes the fast and the timer based retransmissions.

Limiting the number of retransmissions to 0 is allowed. This provides a service similar to UDP, which also doesn't do any retransmissions.

The Limited Retransmissions Policy is used for data channels in the RTCWeb protocol stack. See [[I-D.ietf-rtcweb-data-channel](#)] for more information.

2.2. Priority Policy

Using the Priority Policy allows the sender of a user message to specify a priority. When storing a user message in the send buffer and there is not enough available space, the SCTP stack MAY abandon other user messages with a priority lower than the provided one.

This allows to transfer message with high priority without blocking the send() call, if it is acceptable to abandon lower priority messages.

The Priority Policy can be used in the IPFIX protocol stack. See [[RFC5101](#)] for more information.

3. Socket API Considerations

This section describes how the socket API defined in [[RFC6458](#)] is extended to support the newly defined PR-SCTP policies.

Please note that this section is informational only.

As specified in [[RFC6458](#)], the PR-SCTP policy is configured by using the following sctp_prinfo structure:

```
struct sctp_prinfo {  
    uint16_t pr_policy;  
    uint32_t pr_value;  
};
```

When the Limited Retransmission Policy described in [Section 2.1](#) is used, pr_policy has the value SCTP_PR_SCTP_RTX and the number of retransmissions is given in pr_value.

For using the Priority Policy described in [Section 2.2](#), pr_policy has the value SCTP_PR_SCTP_PRIO. The priority is given in pr_value. The value of zero is the highest priority and larger numbers in pr_value denote lower priorities.

4. IANA Considerations

This document requires no actions from IANA.

5. Security Considerations

This document does not add any additional security considerations in

addition to the ones given in [[RFC4960](#)], [[RFC3758](#)], and [[RFC6458](#)].

6. References

6.1. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC3758] Stewart, R., Ramalho, M., Xie, Q., Tuexen, M., and P. Conrad, "Stream Control Transmission Protocol (SCTP) Partial Reliability Extension", [RFC 3758](#), May 2004.
- [RFC4960] Stewart, R., "Stream Control Transmission Protocol", [RFC 4960](#), September 2007.

6.2. Informative References

- [RFC5101] Claise, B., "Specification of the IP Flow Information Export (IPFIX) Protocol for the Exchange of IP Traffic Flow Information", [RFC 5101](#), January 2008.
- [RFC6458] Stewart, R., Tuexen, M., Poon, K., Lei, P., and V. Yasevich, "Sockets API Extensions for the Stream Control Transmission Protocol (SCTP)", [RFC 6458](#), December 2011.
- [I-D.ietf-rtcweb-data-channel] Jesup, R., Loreto, S., and M. Tuexen, "RTCWeb Datagram Connection", [draft-ietf-rtcweb-data-channel-02](#) (work in progress), October 2012.

Authors' Addresses

Salvatore Loreto
Ericsson
Hirsalantie 11
Jorvas 02420
FI

Email: Salvatore.Loreto@ericsson.com

Robin Seggelmann
T-Systems International GmbH
Fasanenweg 5
70771 Leinfelden-Echterdingen
DE

Email: robin.seggelmann@t-systems.com

Randall R. Stewart
Adara Networks
Chapin, SC 29036
US

Email: randall@lakerest.net

Michael Tuexen
Muenster University of Applied Sciences
Stegerwaldstrasse 39
48565 Steinfurt
DE

Email: tuexen@fh-muenster.de

