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Takeover Suggestion Flag for the ENRP Handle Update Message
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Abstract

This document describes the Takeover Suggestion Flag for the ENRP_HANDLE_UPDATE message of the ENRP protocol.

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1. Introduction

Reliable Server Pooling as described in [3] defines protocols for providing highly available services. The management component used for pool administration is denoted as ENRP Server or Pool Registrar (PR). Since a single ENRP server constitutes a single point of failure, there must be multiple ENRP servers. Servers, denoted as Pool Elements (PE), use an arbitrary ENRP server for registration into the pool. The chosen ENRP server becomes the Home ENRP Server, also denoted as Home PR (PR-H), of the PE. It is responsible for making the PE identity known to the other ENRP servers (by using ENRP_HANDLE_UPDATE messages) and also to monitor the PE health (by using keep-alive messages).

As shown in [11], the following scenario leads to unbalanced ENRP server workload: consider a set of multiple ENRP servers with one subset being unreliable (for example, their network connection has problems) and some reliable ENRP servers. After a while, the reliable ENRP server will get the home ENRP server role for almost all of the PEs, which results in high workload for this ENRP server. Since the home ENRP server role is more computation-intensive (as shown by [13]), this leads to highly unbalanced workload for large RSerPool setups. This unbalanced workload remains, even when the unreliable ENRP servers become reliable again (for example, when the network problems have been solved).

If set, the receiving ENRP server is suggested to take over the PE specified by the Pool Handle and Pool Element Parameters. It is RECOMMENDED for the receiving ENRP server to perform this takeover if it has the resources to do so.

3. Reference Implementation

The RSerPool reference implementation RSPLIB can be found at [15]. It supports the functionalities defined by [3], [4], [5], [6] and [8] as well as the options [9], [10] and of course the option defined by this document. An introduction to this implementation is provided in [12].

4. Testbed Platform

A large-scale and realistic Internet testbed platform with support for the multi-homing feature of the underlying SCTP protocol is NorNet. A description of NorNet is provided in [14], some further information can be found on the project website [16].

5. Security Considerations

Security considerations for RSerPool systems are described by [7].

6. IANA Considerations

This document does not require additional IANA actions beyond those already identified in the ENRP and ASAP protocol specifications.

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