            Reliable Server Pooling (RSerPool) Bakeoff Scoring
                    draft-dreibholz-rserpool-score-15.txt

Abstract

   This memo describes some of the scoring to be used in the testing of
   Reliable Server Pooling protocols ASAP and ENRP at upcoming bakeoffs.

Status of This Memo

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1. Introduction

   This document will be used as a basis for point scoring at upcoming
   RSerPool bakeoffs. Its purpose is similar to that described in
   RFC1025. It is hoped that a clear definition of where and how to
   score points will further the development of RSerPool.

   Note that while attending a bakeoff no one else will score your
   points for you. We trust that all implementations will faithfully
   record their points that are received honestly. Note also that these
   scores are NOT to be used for marketing purposes. They are for the
   use of the implementations to know how well they are doing. The only
   reporting that will be done is a basic summary to the Reliable Server
   Pooling Working Group but please note that NO company or
   implementation names will be attached.

2. Aggregate Server Access Protocol

   The ASAP protocol and useful extensions are described in the follwing
   documents:

   o [RFC5352]

   o [RFC5354]

   o [I-D.dreibholz-rserpool-asap-hropt]

    o [I-D.dreibholz-rserpool-delay]

2.1. Pool Element Communication

   These points will be scored for EACH peer implementation that you
   successfully communicate with.

   o 2 Successful ASAP Registration Request of a PE in a pool using
      Round Robin policy and handling of ASAP Registration Response.

   o 2 Failing ASAP Registration Request of a PE requesting Least Used
      policy in a pool using Round Robin policy and appropriate handling
      of ASAP Registration Response (e.g. printing error message, but
      not retrying registration).

   o 2 Successful re-registration of a PE in a pool using Round Robin
      policy.

   o 2 Successful ASAP Deregistration Request of the PE from its pool
      and handling of ASAP Deregistration Response.

   o 2 Successful handling of ASAP Endpoint Keep-Alive without Home bit
      set, i.e. answering with ASAP Endpoint Keep-Alive Ack.

   o 5 Successful handling of ASAP Endpoint Keep-Alive with Home bit
      set: respond with ASAP Endpoint Keep-Alive Ack and use new ENRP
      server for re-registration.

   o 5 Successful connection to and registration at an ENRP server
      announcing itself via multicast ASAP Announces.

   o 1 Successful registration into pool using Least Used policy.

   o 1 Successful registration into pool using Weighted Round Robin
      policy.

   o 1 Successful registration into pool using Random policy.

   o 1 Successful registration into pool using Weighted Random policy.

2.2. Pool User Communication

   These points will be scored for EACH peer implementation that you
   successfully communicate with.

   o 5 Successful ASAP Handle Resolution in a pool using Round Robin
      policy, correct handling of ASAP Handle Resolution Response.

o 2 Successful failure reporting using ASAP Endpoint Unreachable.

o 5 Successful connection to and handle resolution at ENRP server
   announcing itself via multicast ASAP Announces.

o 1 Successful handle resolution in a pool using Least Used policy.

o 1 Successful handle resolution in a pool using Weighted Round
   Robin policy.

o 1 Successful handle resolution in a pool using Random policy.

o 1 Successful handle resolution in a pool using Weighted Random
   policy.

2.3. ENRP Server Communication

These points will be scored for EACH peer implementation that you
successfully communicate with.

o 2 Successful handling of an ASAP Registration Request into a pool
   using Round Robin policy (ENRP server answers with successful ASAP
   Registration Response).

o 2 Rejecting registration of a PE requesting Round Robin policy
   into a pool using Least Used policy.

o 5 Rejecting registration of a PE with all addresses *not* being
   part of the ASAP association.

o 5 Successful registration of a PE with some addresses *not* being
   part of the ASAP association. The invalid addresses may *not* go
   into the handlespace.

o 5 Successful handling of ASAP Endpoint Unreachable messages. The
   ENRP server must remove the given PE after MAX-BAD-PE-REPORTS=3
   unreachability reports.

o 2 Sending regular ASAP Endpoint Keep-Alives to its PEs.

o 2 Removing PE not answering to ASAP Endpoint Keep-Alive.

3. Endpoint Handlespace Redundancy Protocol

The ENRP protocol and useful extensions are described in the follwing
documents:

o [RFC5353]

o [RFC5354]

o [I-D.dreibholz-rserpool-enrp-takeover]

3.1. Peer Management

These points will be scored for EACH peer implementation that you
successfully communicate with.

o 2 Sending ENRP Presence to a new ENRP server.

o 2 Sending ENRP Presences in the interval given by PEER-HEARTBEAT-
   CYCLE.

o 5 Requesting peer list from new ENRP server using ENRP Peer List
   Request, handling ENRP Peer List Response and adding entries to
   its own peer list.

o 2 Handling ENRP Peer List Request and replying with own peer list
   in ENRP Peer List Response.

o 5 Requesting handlespace from new ENRP server using ENRP Handle
   Table Request, handling ENRP Handle Table Response (without M-bit
   set) and inserting entries into its own handlespace copy.

o 5 Requesting handlespace from new ENRP server using ENRP Handle
   Table Request, handling ENRP Handle Table Response with M-bit set,
   requesting more entries and inserting entries into its own
   handlespace copy.

o 2 Handling ENRP Handle Table Request and replying own handlespace
   in ENRP Handle Table Response (without M-bit).

o 10 Handling ENRP Handle Table Request and replying own handlespace
   in ENRP Handle Table Response with M-bit set, remembering point to
   continue from, responding next block of handlespace entries upon
   following ENRP Handle Table Request, etc. until transfer of
   handlespace data is complete.

o 5 Successful addition of new ENRP server announcing itself via
   multicast ENRP Presence (including association establishment as
   well as download of peer list and handlespace).

3.2. Update

These points will be scored for EACH peer implementation that you
successfully communicate with.

o 2 Handling an ENRP Handle Update adding a PE.

o 2 Handling an ENRP Handle Update updating a PE. The changes must
   be entered into the local handlespace copy.

o 2 Handling an ENRP Handle Update removing a PE.

3.3. Synchronization

These points will be scored for EACH peer implementation that you
successfully communicate with.

o 5 Successful detection of different handlespace checksums upon
   reception of ENRP Presence (due to additional PE), request of
   Handle Table with W-bit set, integration of missing PE into local
   handlespace copy and reporting the correct checksum in own ENRP
   Presence.

o 5 Successful detection of different handlespace checksums upon
   reception of ENRP Presence (due to out-of-date PE), request of
   Handle Table with W-bit set, removal of PE from local handlespace
   copy and reporting the correct checksum in own ENRP Presence.

o 10 Successful detection of different handlespace checksums upon
   reception of ENRP Presence (due to multiple new and out-of-date PE
   identities; size of PE identities is larger than maximum ENRP
   message size), request of Handle Table with W-bit set, handling of
   ENRP Handle Table Responses with M-bit set, removal of out-of-date
   PEs, integration of new PEs into the local handlespace copy and
   reporting correct checksum in own ENRP Presence.

3.4. Takeover

These points will be scored for EACH peer implementation that you
successfully communicate with. The setup contains your ENRP server
plus a set of peers running another implementation.

o 5 Successfully detecting the failure of a remote peer and
   initiating a takeover procedure.

o 5 Acknowledging another peer's takeover and aborting own takeover
   procedure.

o 10 Correctly handling a remote peer's Takeover Server message,
   including ownership change for the remote peer's PEs.

o 10 Successfully taking over a dead peer, including ownership
   change and informing the PEs taken over.

4. **Bonus Points**

   You can also earn Bonus Points:

   o 20 points for the ENRP server handling the largest number of PEs.

   o 20 points for the ENRP server achieving the highest handle
      resolution throughput for a pool containing 100 (should this be
      larger?) PEs.

   Please note that the whole period of the bakeoff is relevant.

5. **Reference Implementation**

   The RSerPool reference implementation RSPLIB can be found at
   [RSerPool-Website]. It supports the functionalities defined by
   [RFC5351], [RFC5352], [RFC5353], [RFC5354] and [RFC5356] as well as
   the options [I-D.dreibholz-rserpool-asap-hropt],
   [I-D.dreibholz-rserpool-enrp-takeover] and
   [I-D.dreibholz-rserpool-delay]. The MIB module is defined in
   [RFC5525]. An introduction to this implementation is provided in
   [Dre2006].

6. **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 [PAMS2013-NorNet],
   some further information can be found on the project website
   [NorNet-Website].

7. **Security Considerations**

   This document does only describe test scenarios and therefore does
   not introduce any new security issues.

   For security considerations of the RSerPool protocols see [RFC3237],
   [RFC5351], [RFC5352], [RFC5353], [RFC5354]. [RFC5356] and in
   particular [RFC5355].

8. **IANA Considerations**

   This document introduces no additional considerations for IANA.

9. References

9.1. Normative References

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9.2. Informative References

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