Path-Aware Semantic Addressing (PASA) for Low power and Lossy Networks

draft-ietf-6lo-path-aware-semantic-addressing-04
draft-ietf-6lo-path-aware-semantic-addressing-05
draft-ietf-6lo-path-aware-semantic-addressing-06
draft-ietf-6lo-path-aware-semantic-addressing-07

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draft-ietf-6lo-path-aware-semantic-addressing-07

March 2024
Main changes: Co-authors’ affiliation update

draft-ietf-6lo-path-aware-semantic-addressing-06.txt
May 2024
Main changes: Address GENART review by Paul Kyzivat

draft-ietf-6lo-path-aware-semantic-addressing-07.txt
July 2024
Main changes: Address RTGDIR review by Joel Halpern
Main Content Changes 05 => 06 (I)

No changes in the document structure

- Inverted definition of PASA Host and PASA Router
  - A PASA Router at boot time first act as a PASA Host to obtain an address then switching role to PASA Router

- AAF => TAAF: **Tree** Address Allocation Function
Main Content Changes 05 => 06 (II)

- Clarification about PLC functioning
  - Usage of non-volatile memory
  - On reboot if state in non-volatile memory just re-register
  - Text amended in a few places in the document, including a revised “Reliability Considerations” section

- Clarification about nodes reboot

A node that, for any reason, reboots does not need to restart the whole procedure. According to [I-D.ietf-oneido-pasa-good] and [RFC523] address registration state has to be stored in non-volatile memory, hence, when the node is up again there is no need to go through parent selection and address request, it can just re-register the previously obtained address.

12. Reliability Considerations

Because Pasa uses algorithmically generated addresses based on the network topology, nodes do not generate and store forwarding table entries in the normal case. One of the potential issues is the risk of renumbering of addresses in case of topology changes. Because of the applicability domain of Pasa, the common case of topology change is known in advance and can be planned, so to reduce disruption due to renumbering. Another case is temporary link failures, where the underlying technology is still able to provide connectivity through alternative links, which is strictly related to the underlying technology, the network topology, the deployed redundancy, and the expected reliability.

More complex reliability scenarios and alternative solutions are beyond the scope of this document, which is focused only on the address allocation framework and stateless forwarding. Furthermore, specific reliability solutions can depend as well on the specific Address Assignment Function used (different from the one presented in this document). Reliability is discussed in more details in [I-D.ietf-oneido-good].
Main Content Changes 05 => 06 (III)

- Adjusted example in Section 6.1 for readability
- Added text on how to go from IPv6 address format to short PASA address format
- Updated misleading picture
Main Content Changes 06 => 07 (I)

No changes in the document structure

- Added some text in Section 5 on the why we are exploring PASA
  - Reduce overhead in specific deployments described in the use cases section.
Main Content Changes 06 => 07 (II)

- Added text in the forwarding algorithm section to better highlight the main concept and the operations.
- Added legend on figure to define:
  - Len()
  - PrefixOf()
Main Content Changes 06 => 07 (III)

- Modified IANA section (and text in the document) so that no codepoint is suggested

- Replaced with
  - TBD1
  - TBD2

- Re-phrased section 12 reliability to point out that the use of multiple roots is described in the reliability document
Next Steps

• Good progress with RTGDIR & GENART Reviews
  • Getting closer to WGLC

THANKS!