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Feature Analysis Tool for stateless IPv4/IPv6 (MAP-T, MAP-E, 4rd)
draft-despres-softwire-stateless-analysis-tool-02

Abstract

This document proposes a discussion tool for the Softwire meeting at IETF 84 in Vancouver.

Significant differentiating features between the MAP approach (proposed standards MAP-T and MAP-E) and the unified approach (proposed standard 4rd) are presented in tabular format.

Its purpose is to facilitate decision making, and is therefore temporary.

Status of this Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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This Internet-Draft will expire on January 17, 2013.

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1. Introduction

Stateless solutions that are proposed for residual IPv4 service across IPv6-only networks will be discussed at IETF 84 in Vancouver, July 27 to August 3 2012. This document proposes a tool to facilitate common understanding during these discussions, and thus facilitate decision making on what to standardize and why.

It contains tables in which, for each of the major proposed specifications, MAP-T, MAP-E and 4rd, the most significant differentiating features are listed:

- Table 1 deals with features that depend on whether IPv4 packets are twice translated (MAP-T), tunneled with packet encapsulation (MAP-E), or tunneled with reversible IPv4/IPv6 header translation (4rd).

- Table 2 deals with features that depend on how IPv6 addresses are derived from IPv4 addresses, plus ports if applicable. Table 3 deals with miscellaneous features.

Documents used are:

- [I-D.ietf-softwire-map] for MAP-T and MAP-E

- [I-D.ietf-softwire-4rd] for 4rd

Issues identified on the tracker of trac.tools.ietf.org/wg/softwire/trac/report/1 are referenced by their ticket numbers.

2. Feature-Comparison Tables

	Features that depend on header formats	MAP-T	MAP-E	4rd	Issue # in tracker
H1	IPv6-only ACLs applicable to IPv4 packets	Y	N	Y	
H2	Support of DF=1 fragmented packets (required by RFC4821)	N	Y	Y	#8
H3	Max performance where TCP/IPv6 is faster than TCP/IPv4/IPv6	Y	N	Y	#9
H4	For shared-address CEs, support of DCCP, UDP lite, and any future protocols using port fields and checksum algorithm of TCP	N	Y	Y	
H5	IPv6 congestion notifications of RFC 3168 forwarded in IPv4	Y	N	Y	
H6	Null-checksum UDP datagrams cannot be sent to wrong destinations with valid checksums	N	Y	Y	#6

Table 1

	Features that depend on IPv6 address formats	MAP-T and MAP-E	4rd	Issue # in tracker
A1	Applicability to sites that use subnet ID = 0	N	Y	#5
A2	Applicability to CEs that are behind third-party CPEs	N	Y	
A3	IPv6 addresses of IPv4 endpoints are recognizable without knowledge of Domain mapping rules (for ACLs etc.)	N	Y	

Table 2

	Miscellaneous	MAP -T	MAP -E	4rd	Issue # in tracker
M1	IPv6 Packet reassembly never needed in BRs	Y	N	Y	#3
M3	BR-CE compatibility guaranteed by the number of mapping rules CEs MUST be able to support	N	N	Y	
M4	IP header length	40 or 48	60 or 68	40 or 48	

Table 3

3. Informative References

[I-D.ietf-softwire-4rd]
Despres, R., Penno, R., Lee, Y., Chen, G., S. Jiang, and M. Chen "IPv4 Residual Deployment via IPv6 - a unified Stateless Solution (4rd)", draft-ietf-softwire-4rd-03 (work in progress), July 2012.

[I-D.ietf-softwire-map]
Troan, O., Dec, W., Li, X., Bao, C., Zhai, Y., Matsushima, S., and T. Murakami, "Mapping of Address and Port (MAP)", draft-ietf-softwire-map-01 (work in progress), June 2012.

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