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Detecting Network Attachment Terminology
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Abstract

The DNA working group is working on solutions for hosts to detect their IP layer connectivity and configuration status quickly which in turn would allow it to reconfigure the IP link faster than today. This document aims at providing definitions for key terms used by the group.

Table of Contents

1. Introduction

Hosts need link-layer connectivity and correct IP layer configuration for sending and receiving packets. When a node suspects that link-layer connectivity has undergone change, it needs to check whether its IP layer connectivity or configuration are still valid. The DNA working group is working on solutions to detect IP layer connectivity changes and re-configures the IP configuration quickly. This document defines the key terms used by the group.

2. Terminology

The following terminology is presented to describe components that are required for reliable detection of network attachment.

Link Instance: A domain where all connected hosts may be reached through local broadcast or all-nodes multicast transmission.

Neighbor: A host or router on the same link-instance as the node.

Internet Connectivity: A state where a host can maintain communications with arbitrary destinations on the Internet.

Network Attachment: An event subsequent to link-layer connection occurs when a host is able to send and receive some IP datagrams (particularly for configuration purposes) within a link-instance.

IP Subnet: A range of addresses that share a common global prefix.

Full Reachability: Also called Bi-directional Reachability. A neighbor is supposed to be fully reachable if one can both send and receive packets.

IP link: A communication facility or medium over which nodes can communicate at the link layer.

Partial Reachability Evidence that a host is within transmission or reception range of a neighbor. Reachability state is assumed to be available if a host receives advertisements from or data through the neighbor in question.

Link Hint: f An indication from the link-layer to the IP layer that a change in link state may have occurred. These hints, while not considered authoritative for IP configuration, but can be used to initiate reachability checks or start to inquire about network information.

Eager Configuration Switching: An algorithm by which systems eagerly perform configuration signaling, without checking reachability of their neighbors or routers. Note that these systems may cause excessive configuration and signaling in some network topologies.

Lazy Configuration Switching: An algorithm by which systems check reachability with its currently configured routers before undertaking configuration signaling. Most reachability checks take some time to determine a neighbor's absence, which will cause delays to configuration in lazy systems.

Change Detection Evidence that the IP configuration on a link has changed, and that the host's IP address, routes, MLD groups or other data that may require updating.

Link Information Parameters: Link Information Parameters are defined in the context of DNA as signal strength, signal quality and throughput.

3. Security Considerations

This document presents only terminology. There are no security issues in this document.

4. Acknowledgments

Thanks to participants within the DNA BOF whose emails and input help craft the terminology in this document.

Normative references

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