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IPv6 Deployment Related Terminology
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Abstract

When discussing deployment matters related to IPv6, a first hurdle which is encountered is the lack of common terminology or at least basic terms used in various fora. As a contribution in this area, this document identifies and proposes a set of terms and their definitions.

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1. Introduction

This document is intended to serve as a reference to IPv6 deployment related terminology. It is not the purpose of this document to introduce any new terminology into this area but only to provide definition of already existing and established terminology.

2. IPv6 Deployment Related Terminology

2.1. IPv6 Deployment

IPv6 Deployment is the process of introducing IPv6 capabilities within a network or service (e.g., DNS, VoIP) environment, be it an environment where IPv4 is in use and/or the two IP versions co-exist or in a "Greenfield" deployment with no prior IP infrastructure. IPv6 Deployment in co-existence with an IPv4 environment may or may not have the goal of completing an IPv6 migration.

IPv6 Deployment can be discussed from a node capability perspective as well as from an application capability perspective.

2.2. IPv6-only Node

IPv6-only Node denotes an entity which embeds only IPv6 capabilities from an IP transfer standpoint.

2.3. IPv6-only Network

IPv6-only Network defines a network mode where only IPv6 transfer capabilities are available for the delivery of IP packets.

2.4. IPv6-only Application

IPv6-only Application refers to an application which is able to manipulate and handle IPv6 addresses (i.e., parse IPv6 addresses, use IPv6 addresses as a parameter when invoking internal or external functions, etc.). In particular, an IPv6-only Application is not able to invoke IPv4-specific functions such as IPv4 name resolution.

2.5. IP-agnostic Application

IP-agnostic Application refers to an application or service being written in a way that makes it possible to operate using either IPv4 or IPv6 networking infrastructures, thus being IP version independent. However, an IP-agnostic program may change its behavior depending on which IP version currently being used to adapt its behavior to the specifics of the current IP version if needed (IP

version aware).

2.6. IPv6 Migration

IPv6 Migration is the process of switching from an IPv4-only mode to an IPv6-only mode in a network or a service realm. Several intermediate steps can be implemented based on the local policies of the administrative entity which undertakes the IPv6 migration. In particular:

- o Co-existence phase: refers to the phase where both IPv4 and IPv6 capabilities are enabled and are in use.
- o Transition point: refers to a point in time when you turn IPv4 off, leaving the transisioning entities IPv6-only in the IPv6 Migration process.

2.7. IPv6 Migration Strategy

Refers to the process of implementing an IPv6 Migration process within clear milestones and objectives.

2.8. IPv6 Transition

IPv6 Transition defines the task of making the transition of a network to IPv6-only as the final stage of the IPv6 Migration process. IPv6 Transition Mechanisms [[RFC4213](#)] are designed to enable transition and to support IPv6 hosts and routers that need to interoperate with IPv4 hosts and utilize IPv4 routing infrastructures.

2.9. IPv4-IPv6 Interconnection

IPv4-IPv6 Interconnection function refers to any function which is used to interconnect two heterogonous realms (i.e., IPv4 and IPv6). An interconnection function may be a translator, an encapsulator, a proxy, etc.

2.10. IPv4-IPv6 Interworking

IPv4-IPv6 Interworking denotes to the ability of establishing successful communications between IPv4-only and IPv6-only nodes. The interworking relies on IPv4-IPv6 Interconnection function together with application-specific modules such as ALG (Application Level Gateway).

3. Acknowledgements

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4. IANA Considerations

This document includes no request to IANA.

5. Security Considerations

There are no security considerations associated to this document.

6. References

6.1. Normative References

[RFC4213] Nordmark, E. and R. Gilligan, "Basic Transition Mechanisms for IPv6 Hosts and Routers", [RFC 4213](#), October 2005.

6.2. Informative References

[EMIGRANTS]
Vilhelm Moberg, "The Emigrants (novels)",
<[http://en.wikipedia.org/wiki/The_Emigrants_\(novels\)](http://en.wikipedia.org/wiki/The_Emigrants_(novels))>.

Appendix A. A tale of two countries

Freely adapted from "The Emigrants" novels series [[EMIGRANTS](#)]

Once upon a time there where two countries, IPv4 and IPv6. IPv4 was a crowded country with limited resources and a growing population tormented by starvation and diseases. On a distant shore across the sea was a brave new land, full of promises and plenty, called IPv6. Spurred by the opportunities of a better life in the distant country families started the process of migrating from their old country IPv4 to IPv6. In their new homeland the people there spoke another language called IPv6, while the newcomers only spoke IPv4, the language of their old country. Luckily many of the people that already lived in IPv6 also spoke IPv4, and being bi-lingual made it possible for them to talk to their new fellow countrymen and to

introduce them to the language of their new country. Eventually the immigrants also became bilingual and for some their frequent use of their new won language they made the transition from speaking IPv4 to IPv6. It was also common that the children of the immigrants only spoke IPv6, which was made possible because of the bi-lingual skills of their parents. Some of the older people, like grandparents that accompanied the families, kept their old habits and language which they spoke among their kin and friends from the old country. To talk with their grandchildren they had to rely on the bilingual parents to translate between children and grandparents. Eventually the need of being bi-lingual became less important as time went by, and when the need will go away only time can tell.

Bi-lingual read Dual-Stack

Starvation and diseases read Address pool depletion

Migrate - move from one country or region to another and settle there

Transition - a change of state

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