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The Next Generation of Internet Protocol

IPv6 or Internet Protocol version 6 is the next generation of protocol applied for Internet users. It's designed to provide several advantages over current Internet Protocol Version 4 (or IPv4). Both IPv6 and IPv4 define network layer protocol that is, how data is sent from one computer to another one over packet-switched networks such as Internet.

IPv4 was first developed in the 1970s, and the main protocol standard RFC 791 (or request for comments) that governs IPv4 functionality was published in 1981. The impending shortage of address space (availability) was recognized by 1992 as a serious limiting factor to the continued usage of the Internet run on IPv4.

With admirable foresight, the Internet Engineering Task Force (IETF) initiated as early as in 1994, the design and development of a suite of protocols and standards is now known as Internet Protocol Version 6 (IPv6), as a worthy tool to phase out and supplant IPv4 over the coming years. There is an explosion of a great number of IP. The new protocol is aimed to support efficiently support the ever-expanding Internet usage and functionality as well as security.

IPv6 uses a 128-bit address size compared with the 32-bit system applied in IPv4 and will allow for as many as 2^{128} possible addresses, enough to cover people all over the world. The 128-bit system also provides for multiple levels of hierarchy and flexibility in hierarchical addressing and routing.

IPv6 guarantees the quality of service (QoS) that requires several new applications such as IP telephony, video/audio, interactive games or ecommerce. Whereas IPv4 is the best effort service, IPv6 ensures QoS, a set of service requirements to deliver performance guarantee while transporting traffic over the network. Other important features of IPv6 are following: stateless auto-configuration of hosts and network-layer security. First feature allows IPv6 host to configure automatically when connected with routed IPv6 network. IPv6 implements network-layer encryption and authentication via IPSec (Security).

Increased address space, more efficient routing, reduced management requirement, improved methods to change ISP (internet service provider), better mobility support, multihoming (a technique used to increase the reliability), security, scoped addresses (link-local, site-local and global-address space) are the benefits of this system.

We believe that Internet expansion is important and upgrades are sometimes warranted.