

**UNIVERSITI TEKNOLOGI MARA**

**PERFORMANCE COMPARISON OF MULTI  
MEDIA APPLICATION OVER IPv4 AND IPv6  
NETWORK**

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## ABSTRACT

Recently, rapid changes in the communication world and with a larger scale of internet growing so fast especially on the user side where the number of internet-enabled mobile devices are available at cheapest cost and increases rapidly, this scenario causes a huge demand on the IP addresses allocation. This problem leads to the hiccup in IPV4 capability.

Imagine that written in a journal, one of the largest ISPs in the world claims that by the end of 2012, they will use up all the IPv4 addresses they have acquired or can acquire. This is when the IPv6 comes in the picture. IPv6 is known as the next-generation network layer protocol. IPv6 uses a 128-bit address, or approximately  $3.4 \times 10^{38}$  addresses, or more than  $7.9 \times 10^{28}$  times as many as IPv4, which uses 32-bit addresses and provides approximately 4.3 billion addresses.

The two protocols are not designed to be interoperable, complicating the transition to IPv6. As acknowledged, the exhaustion of IP addresses by IANA (Internet Assigned Numbers Authority) is the main reason why world needs to migrate from IPv4 to IPv6. This paper analysed a performance comparison using Dual Stack Technology based on both Simulator by GNS3 and real Cisco devices.

Multimedia streaming from Host to Client scenario was set up and the streaming performance of both IPv4 and IPv6 protocol were compared and analysed. A comprehensive quantifiers were used to measure the performance between the two such as, RTT - round trip time/delay, for TCP and UDP. Result from this analysis can be a benchmark to prove that IPv6 is having a better performance compared to IPv4 based on the Dual Stack Hosts.

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