



The Present Vs The Future

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Introduction

Internet protocol addresses (IP addresses) are essential in networking, these addresses allow devices to communicate with one another by using an IP address to identify where the data is going. These addresses fall into two versions version 4 and version 6 examples of these can be seen in figure 1. This study will conclude which has better performance.

IPv4 Address: 1.160.10.240

IPv6 Address:

3ffe:1900:4545:3:200:f8ff:fe21:67cf

Figure 1– IPv4 and IPv6 Address Comparison

Aims And Objectives

- Compare the performance of IPv4 and v6 using simulation software.
- Research how other aspects of IPv4 and v6 can effect performance.
- Compare the results found in this study to that of other studies to get more accurate results.

IPv4 Versus IPv6

- IPv4 can only allocate 2^{32} or 4,294,967,296 IP addresses .
- IPv6 can allocate 2^{128} or 340,282,366,920,938,000,000,000,000,000,000,000,000,000,000.
- IPv4 currently fully implemented.
- IPv6 partially implemented which can be seen in figure 2, only 11.58 of users of google use IPv6.

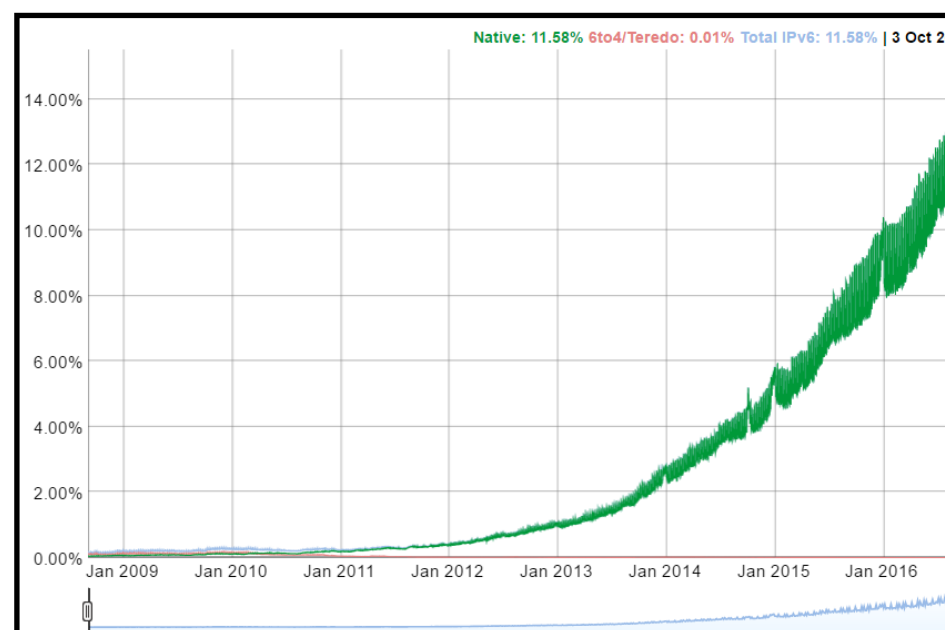


Figure 2—Number of Google Users using IPv6

Method of Testing

To compare the performance of IPv4 and IPv6 a network simulation software called “Qualnet” will be used in place of a physical network although the results will never be as accurate as a physical network Qualnet still gives reliable results. This software will allow the testing to be altered without the need for unnecessary complications which can lead to faulty results.

The results from the testing will come from multiple performance traits for example jitter, and packet loss. These results will be put into a graphic and compared to the results of other sources, a concrete conclusion can then be seen as to the overall results of these tests.

The results will then demonstrate which Protocol whether IPv4 or IPv6 has a higher standard of performance.

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