

Yana Rybina  
S.M. Potyhenchenko, research supervisor  
T.I. Morozova, language adviser  
SHEI “National Mining University”, Dnipropetrovsk

## **Comparative Analysis of IPv4 and IPv6 Protocols**

Nowadays the number of devices that is connected with the Net is growing from day to day. Each of these devices should have its own unique address.

Everybody has heard about Internet-protocols such as “IPv4” and “IPv6” but not everybody knows what we use them for. Is there any difference between them? Let’s have a look at their distinctive characters.

IPv4 is an abbreviation of the Internet-protocol of the fourth version. It’s the fourth addition of the Internet-protocol developed to find out net devices through the system of addressing. Such protocol is used basically to connect devices with Internet. Given protocol is mainly used on 32-bites address charts which support only  $2^{32}$  addresses. At present time this version is used to distribute IP-addresses. But due to its limitations the necessity of improving this version that could perform the same functions without any problems has arisen.

This has lead to the development of IPv6. It is the successor of IPv4 and is intended to expand Internet capabilities concerning the volume of data transmission and the number of on-line units. This version includes 128 bit that is equal to  $2^{128}$  addresses. It means that it can support more devices. . IPv6-addresses are written in hexadecimal code and are divided by two-spots to make them more readable for people. . IPv6 is a very important technology which enables to provide the support of increasing number of users and amount of IP-devices in Internet.

Protocol IPv4 is used as a basic Internet protocol for 30 years. .Its reliability, scalability and limited function package cannot cope with demand for the new IP-addresses connected with the increasing number of on-line units. That’s why IPv6 is becoming more and more popular.

The limitations of IPv4 protocol are the following: limited address space; difficulties connected with routing control; complicated units customization; absence of integrated methods of security; limited quality of service.

To eliminate all these limitations in IPv4 is a waste of time. You will have to make changes in the whole stack of TCP/IP that will lead to the work complication connected with new standard jump.

Improvements of IPv4 protocol enable to protect data transmitted through Internet and corporate nets.

In conclusion it is necessary to say that though IPv4 protocol has many disadvantages it could work. New IPv6 protocol is a very good alternative. But due to the units supported only IPv4 technology and difficulties connected with the long process of jumping to IPv6 technology, these two protocols will interact with each other successfully.