

ITFreeTraining



Introduction to IPv6

For the free video please see
<http://itfreetraining.com/ipv6/intro>

Welcome to the first free video from ITFreeTraining's course on IPv6! In this course, we'll address everything you need to know about IPv6. Please let us know if anything is missing and needs to be included in future IPv6 videos.

What's in This Course?

- IPv6 Addresses
- IPv6 Address Types
- Subnetting
- Transition Protocols
- IPv6 only network



0:17 – In this video we will begin with an examination of IPv6 addresses. At first glance, they may appear to be complicated, however, you can tell them apart by simply looking at them. Being able to identify an IPv6 address is a valuable skill that will enable you to determine how it may be used.

0:35 – Next, we'll examine subnetting in IPv6 as it varies greatly from subnetting on IPv4. The differences make it worthwhile learning as it becomes difficult in different areas and easier in others. Once you understand subnetting on IPv6, however, you'll be able to obtain some great results.

0:52 – After this, we'll look at the various transition protocols that assist with bridging the differences between IPv4 and IPv6. To wrap it up, we'll look at what needs to be done in order to have an IPv6 only network. As you'll see in the course, the deployment of IPv6 has been very slow. However, it is useful to consider for when the time comes that IPv4 is eclipsed and IPv6 replaces it as the major protocol however far away that day is.

History of the Internet Protocol

- IPv4 developed in 80's
- IPv4 also referred to as TCP/IP
- 2011 IPv4 addresses started to run out
- IPv4 uses 32bit addresses/IPv6 uses 128bit addresses
- Estimated currently 10% of the internet using IPv6

1:22 – To begin, we'll first take a look at the history of the Internet protocol. The Internet protocol is what connects our networks of computers and devices worldwide. This common protocol is what allows different operating systems and devices to communicate with one another. In the early 80's, the fourth version of the Internet protocol was developed. Obviously, there were other versions before this, however, they were all considered experimental and never made commercially available. The term TCP/IP may also be used in reference to IPv4.

1:55 – The Internet protocol is made up of many different protocols. Transmission Control Protocol (TCP) is one of the major protocols that is used in the Internet protocol. Thus, TCP was utilized in the name. Over time, the TCP bit has been dropped from the main name and it is now just referred to as IPv4 or IPv6 or just the Internet protocol.

2:22 – Since its first deployment, the IPv4 protocols became extremely popular and has been improved vastly since it was first created. This extreme popularity forced IPv4 to scale significantly in order to meet the demand. Nowadays, virtually everyone is connected to the Internet, and with the introduction of cloud-based services, the need for addresses continues to expand.

2:42 – In 2011, IPv4 addresses began to reach their limit and run out. This was the major cause for a new protocol to be implemented. This new replacement protocol will be IPv6. There was a version 5 of the Internet protocol but it was considered experimental and was not deployed. The primary difference between IPv4 and IPv6 is in their addresses, in that IPv4 uses 32-bit addresses whereas IPv6 uses 128-bit addresses. In the later videos for IPv6, I will look at how this impacts the ability to have more devices connected to the Internet. Without going into too much detail, let's just say that IPv6 can handle so many addresses that we should never run out.

3:25 – The deployment of IPv6 initially started in the late 90's but it was slow to begin with. Today, it is estimated that 10% of the Internet has adopted the IPv6 protocol. In this course, we'll review why the adoption has been slow and the current state of the Internet's IPv6 deployment.

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References

“Installing and Configuring Windows Server 2012 R2 Exam Ref 70-410” page 205
“IPv4” <https://en.wikipedia.org/wiki/IPv4>

Credits

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