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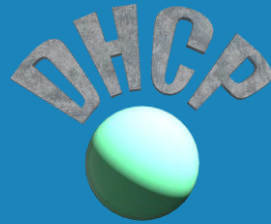
Introduction to DHCP

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

In this free course from ITFreeTraining, we'll take a look at Dynamic Host Configuration Protocol, better known as DHCP. Before we begin, we'll discuss what exactly DHCP is.

What is DHCP?

- A system used to automatically configure network devices



0:15 – To put it simply, DHCP is a system that is utilized to automatically configure network devices. Consider you have a DHCP server on your network. On this network there will be a number of devices ranging from items such as printers, workstation computers, phones and potentially customer devices. These devices will need to be able to communicate over the network and to do this they require a network configuration.

0:40 – This is where DHCP's role comes into play. It provides the ability to send network configuration information to the devices that request it. The devices can then use this network configuration information to connect and communicate with other devices on the network. Before DHCP, the administrator had to configure each device individually by visiting each machine. With larger networks, DHCP alleviates a significant amount of overhead compared to having the administrator configure each and every device.

1:10 – The configuration list may have been stored using an Excel spreadsheet. It fell to the administrator to ensure that the list was always updated and correct. When a new device was configured, the administrator would have to ensure that they didn't use an IP Address that was already taken, along with entering the device information into the spreadsheet.

1:25 – On small networks this was possible; however, this is rather infeasible when it comes to larger networks. DHCP makes changes on the network much easier as there is no need to visit each computer to manually change the configuration. As well, visiting each machine manually leaves open an opportunity to make mistakes. A misconfigured device has the potential to have issues connecting to and accessing the network, if it is able to connect at all.

Advantages of DHCP

- Network configuration supplied automatically
- Devices are configured correctly
- Device configuration can easily be changed
- Allows devices to move between networks



1:50 – DHCP presents a lot of advantages over the traditional manual configuration of each device. Features such as configuration information being automatically supplied serves to reduce the chance of mistakes and misconfigurations. As long as the DHCP server is configured correctly, it will provide the correct settings.

2:12 – The next advantage is that the configuration of the network devices can easily be changed from a centralized location. For example, it is easy to simply change the DNS server address if it needed to change, as you would just change it in DHCP to reflect the new address. After the change is made, the DHCP server will update all the devices on the network over time with the new configuration. This will occur as the devices refresh their information from the DHCP server.

2:36 – The last advantage DHCP provides is that the network configuration can be altered easily. Devices are able to change from one network to another. Consider an example of a laptop that is taken from one network in the office to another location; the DHCP server will provide the information needed to access the network. This is also applicable to other devices such as tablets, smartphones and more.

2:55 – DHCP is the protocol that provides the configuration to the device, so that it is possible to connect to the various different wireless networks. You can see that it is worth the time to learn and understand how DHCP operates and to be able to implement and manage it in your networks. With a foundational understanding of DHCP, we'll now look at what this course will cover.

What is in this Course?

- How DHCP works
- Installing DHCP
- Creating a scope
- Creating a reservation
- Working with PXE
- DHCP relay agent
- DHCP database

3:10 – To start with, I will look at how DHCP works and operates. There are a few components that make up DHCP and it is important to have a grasp of how these concepts work. Following this, we'll review how to install DHCP. It's a rather easy process, however, if you utilize both Microsoft DHCP and Active Directory there is an extra step that you'll need to remember before you can begin using DHCP.

3:38 – Next, we'll review creating a DHCP scope. The scope defines which addresses will be distributed on the network, like a pool of free IP Addresses handed out as needed with no duplication. In some scenarios, it's important to bind IP Addresses to a host and this is called a static IP Address. In this case, we will discuss how to create a reservation in DHCP. This is done to ensure that the same IP Address is always allocated to the same device.

4:00 – Next, we'll review how to use DHCP with PXE. PXE enables a device to boot from the network. Diskless workstations require files to be downloaded from the network in order to operate. In other cases, it may be more appropriate to use PXE, for example when performing an installation from the network. DHCP utilizes broadcast or multicast to communicate, as you'll see in our demonstration. This works well on local networks but this isn't feasible for remote clients (without a VPN).

4:30 – We'll then look at DHCP relay agent. This enables a remote client to access a DHCP server when there is no direct access to it. After that, we'll discuss the DHCP database. This database contains all the network configuration that has been designated for the network to use. It is useful to know how it operates in case there is any need to troubleshoot DHCP or to migrate the DHCP role to another server.

5:00 – Following this, we'll review how to prevent unauthorized access to DHCP and how to shore up security. DHCP is a great time saver for administrators. However, it can also be a vulnerability by allowing unauthorized devices to connect to the network and obtain access. In

some cases, you may want to make it easy for a device to access a network. For example, a free wireless access point. Other times, such as on a corporate network, it may be more prudent to apply some security to DHCP to prevent unauthorized access.

5:30 – The last topic we'll review and discuss is statistics, auditing, log files and troubleshooting. These topics will help you manage and control the DHCP server and moreover the network itself. That's all for what the DHCP course will cover. If you feel something is missing feel free to let us know and we'll make sure to take a look at adding it. Until next time, we would like to thank you for watching the first free video in the DHCP course. We hope to see you in the next video, and remember, all our videos are free! Thanks and see you next time.

References

"Installing and Configuring Windows Server 2012 R2 Exam Ref 70-410" page 207

Credits

Script: Phil Guld <http://philguld.com>

Voice Talent: HP Lewis <http://hplewis.com>

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