The Internet of Everything (IoE) (Instructor Version)

Instructor Note: Red font color or Gray highlights indicate text that appears in the instructor copy only.

Objectives

Explain how network devices use routing tables to direct packets to a destination network.

IPv6 is important to help manage the data traffic identification, which will be needed in the future. Many addresses will assist in this endeavor, and IPv6 helps to alleviate this need.

Background /Scenario

Today, more than 99% of our world remains unconnected. Tomorrow, we will be connected to almost everything. 37 billion devices will be connected to the Internet by 2020. From trees to water to cars, the organic and the digital will work together for a more intelligent and connected world. This tomorrow of networking is known as "The Internet of Everything" or "IoE."

If traffic, transportation, networking and space exploration depend on digital information sharing, how will that information be identified from its source to its destination?

In this activity, you will begin to think about not only what will be identified in the IoE world, but how everything will be addressed in the same world!

Activity directions for class or individual students:

1. Read the blog/news source, "Internet of Everything: Fueling an Amazing Future #TomorrowStartsHere" authored by John Chambers regarding the Internet of Everything (IoE). This blog is located at http://blogs.cisco.com/news/internet-of-everything-2.
2. Then view the video, "Cisco Commercial: Tomorrow Starts Here" located halfway down the page.
3. Next, navigate to the IoE main page located at http://www.cisco.com/web/tomorrow-starts-here/index.html.Then click on a category that interests you from within the graphic collage.
4. Next, watch the video or read through the blog or .pdf that belongs to your IoE category of interest.
5. Write 5 comments or questions about what you saw or read. Be prepared to share with the class.

Instructor note: This is an individual or an in-class Modeling Activity (MA). It is not intended to be a graded assignment. Its purpose is to encourage student reflection about their perception of networks and how they will be identified in the future. IPv6 is necessary to support the Internet of Everything.

Required Resources

- Internet connectivity for research on the cisco.com site. Headphones may also be useful if students are individually completing this activity within a group setting.
- Recording capabilities (paper, tablet, etc.) for comments or questions regarding the videos, blogs and/or .pdfs read or viewed for Step 3.

Reflection

1. Why do you think there is a need to address trees? Windmills? Cars? Refrigerators? Why will just about anything be able to use an IP address?

   _____

The research for the scenario will be varied. Some concepts worth mentioning or discussing include:

- To support the new IoE concepts/implementation and growing number of devices that connect to the internet, an exponential amount of addresses will be needed. Might need to briefly discuss HOW trees can be connected to the Internet (i.e., different kinds of sensors which transmit data – see http://www.ericsson.com/article/connected_tree_2045546582_c)
- Knowing how to use IPv6 addressing will be important to network administrators, ISPs/TSPs, and the general public as we move to more and more network types/classifications of networks.

Identify elements of the model that map to IT-related content:

- Network types (subnets, etc.)
- Network and host identification as related to network types
- Quality of network transmission as related to network identification