# Lab – Investigating Wireless Implementations

## Objectives

**Part 1: Explore Integrated Wireless Routers**

**Part 2: Explore Wireless Access Points**

## Background / Scenario

The number of mobile devices, such as smart phones, tablets, and laptops, continues to increase. These mobile devices can connect via integrated wireless routers or wireless access points (WAPs) to access the Internet and other network resources. Wireless routers are typically employed in home and small business networks. WAPs are more common in larger, more complex networks.

In this lab, you will explore some integrated wireless routers and Cisco WAPs. You will access online emulators for some of Linksys routers and Cisco WAPs. The emulators imitate the configuration screens for the Linksys routers and Cisco WAPs.

## Required Resources

Device with Internet access

## Part 1: Explore Integrated Wireless Routers

Integrated wireless routers usually perform the functions of the following devices:

- a switch by connecting wired devices
- an access point by connecting wireless devices
- a router/gateway by providing access to the Internet through a modem to the ISP

Currently there are many different broadcast standards for wireless routers:

- 802.11b
- 802.11g
- 802.11n
- 802.11ac

The differences between these standards are speed and signal strength. In addition to the standards, each integrated wireless router may have features that meet your network requirement, such as content filtering, QoS, IPv6 support, and wireless security.

In Part 1, you will search the Internet for three different wireless routers and create a list of the important router feature by recording them in the following table. During your search, you can also record additional features that are important to you in the **Other Features** column in the table.

To explore emulators for some of the Linksys routers, go to http://ui.linksys.com/files/.

**Note**: The Linksys emulators may not provide the most current version of the firmware.

| Brand/Model | Price | IPv6-Enabled | Wireless Security | Band | Other Features |
|---|---|---|---|---|---|
| Linksys/EA4500 | $129.99 USD | Yes | WPA2 | Dual-band N (2.4 GHz and 5 GHz) | Separate Guest Network, 4 Gigabit Ethernet Ports, QoS, remote administration from mobile devices, such as smart phones |
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After you have completed the table above, determine which integrated wireless router you would choose for your home. Explain your choice.

## Part 2:  Explore Wireless Access Points

Unlike integrated wireless routers, a WAP does not have integrated switch and router functions. A WAP only allows users to access the network wirelessly using mobile devices and provides a connection to the main wired network infrastructure. With the correct user credentials, wireless users can access resources on the network.

In this part, you will explore two Cisco WAPs, WAP321 and AP541N. Cisco's website (http://www.cisco.com) can provide you with technical specifications regarding these WAPs. Furthermore, online emulators are also available at the following links:

To access an online WAP321 emulator, go to https://www.cisco.com/assets/sol/sb/WAP321_Emulators/WAP321_Emulator_v1.0.2.3/main.html.

To access an online AP541N emulator, go to http://www.cisco.com/assets/sol/sb/AP541N_Emulators/AP541N_Emulator_v1.9.2/Getting_Started.htm.

| Model | Security | Band | Other Features / Comments |
|-------|----------|------|---------------------------|
| WAP321 | | | |
| AP541N | | | |

## Reflection

What features on the wireless routers or WAPs are important for your network? Why?