



Lab 1.4.7 Wireless Lab Setup

Estimated Time: 30 minutes

Number of Team Members: Instructor led classroom demonstration

Objective

The following objectives will be covered in this lab:

- Learn the topologies for the basic WLAN design.
- Learn the topology in the basic metropolitan area design.

Scenario

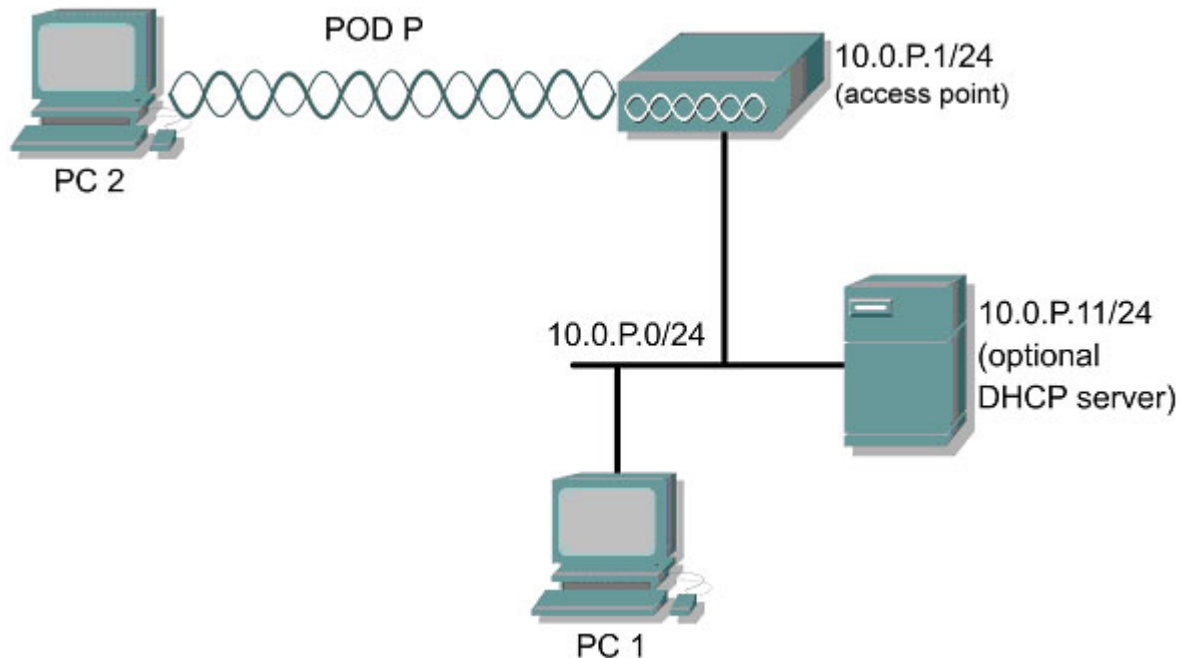
WLAN technology has two functions. First, WLAN can take the place of a traditional wired network. Second, WLAN can extend the reach and capabilities of a traditional wired network.

Much like wired LANs, in-building WLAN equipment consists of a Personal Computer Memory Card International Association (PCMCIA) card, a personal computer interface (PCI) or industry-standard architecture (ISA) client adapters, and wireless APs.

WLANS are also similar to wired LANs for small or temporary installations. A WLAN can be arranged in a peer-to-peer or ad hoc topology using only client adapters. For added functionality and range, APs can be incorporated to act as the center of a star topology or function as a bridge to an Ethernet network.

With a wireless bridge, networks located in buildings miles away from each other can be integrated into a single local-area network.

Topology



Preparation

The instructor will need at least one laptop computer, at least one desktop computer, and the equipment in the wireless course equipment bundle. The instructor should attempt to have as many wireless computers as possible, in order to display the concepts involved in the wireless network.

The following tools and resources will be needed for this lab:

- Wireless networking course equipment bundle
- Laptop computers with the PCMCIA NIC inserted
- Desktop computers with the PCI NIC inserted
- A switch or hub for a wired connection
- A computer to act as a server on the wired network

The instructor may compile any variety of equipment on the wired network to depict the wired network in a more realistic setting.

Step 1 Setup a basic WLAN

- a. The instructor will have a variety of PCs or servers cabled into the wired network infrastructure without wireless devices.
- b. The instructor will distribute the various computers with the wireless NICs around the classroom in a similar fashion to a basic WLAN topology.
- c. The instructor will introduce one AP as the root hub in the classroom.
- d. The instructor will introduce a cable from the AP to a switch connected to the wired network. The wired network is now being extended with the wireless AP to the various wireless clients that were assembled.

- e. List the devices in this topology:

Step 2 Setup a site-to-site WLAN (Optional)

The instructor will introduce a second AP or bridge into the topology and will introduce the various antennas that can bridge wireless signals across to another building.

- a. What type of antenna distributes wireless signals in all directions and can be used in a point-to-multipoint wireless bridge topology?

- b. What type of antenna distributes wireless signals in one general direction and can be used in a point-to-point topology?
