Mobile & Wireless Technology

CT090-3-2 & Version VD01

WLAN Site Survey

A·P·U

ASIA PACIFIC UNIVERSITY
OF TECHNOLOGY & INNOVATION

Topic & Structure of The Lesson

- Gathering Business Requirements

- Public Access, Hotspots, Hospitality

- Interviewing Managers and Users

- Manufacturer Guidelines and Deployment Guides

- Defining Physical and Data Security Requirements

- Gathering Site-Specific Documentation

- Documenting Existing Network Characteristics

- Identifying Infrastructure Connectivity and Power Requirements

- Understanding RF Coverage and Capacity Requirements

- Client Connectivity Requirements

Learning Outcomes

- ## At the end of this topic, You should be able to

  Understand the business requirements of a WLAN.

  Know various types of business models.

  Understand the interview process.

  Identify the importance of site-specific documentation

  Know the importance of identifying existing networks

  Be familiar with RF coverage requirements

  Understand client connectivity requirements

Key Terms You Must Be Able To Use
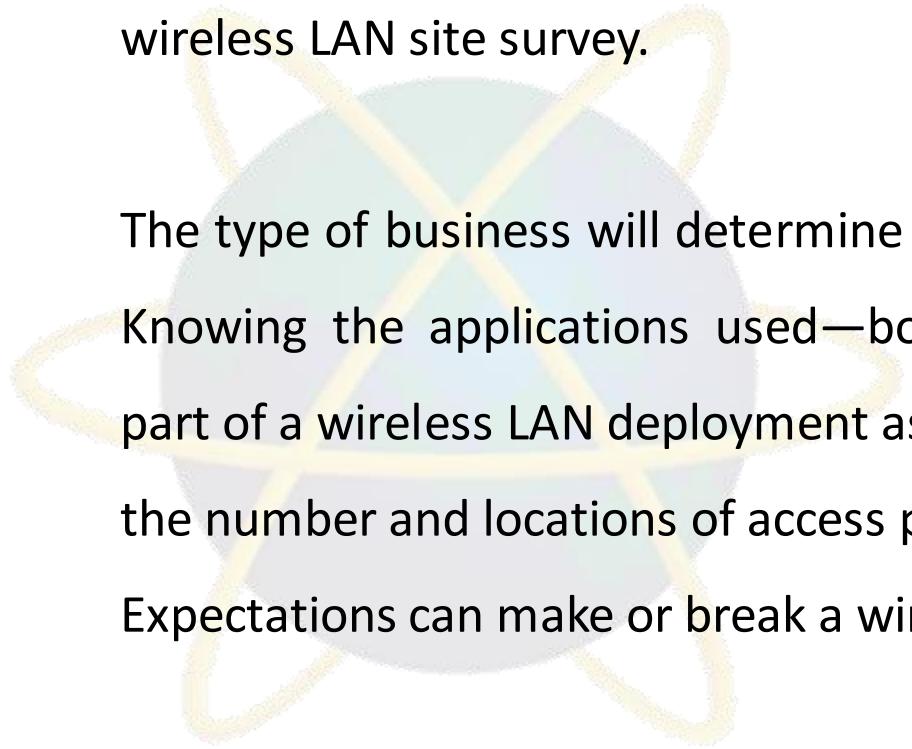
If you have mastered this topic, you should be able to use the following terms correctly in your assignments and exams:

- Business requirements
- Data security
- Existing network infrastructure
- Physical security
- RF coverage
- RF jamming
- RF spectrum analysis
- Site survey
- Wiring closet

Gathering Business Requirements
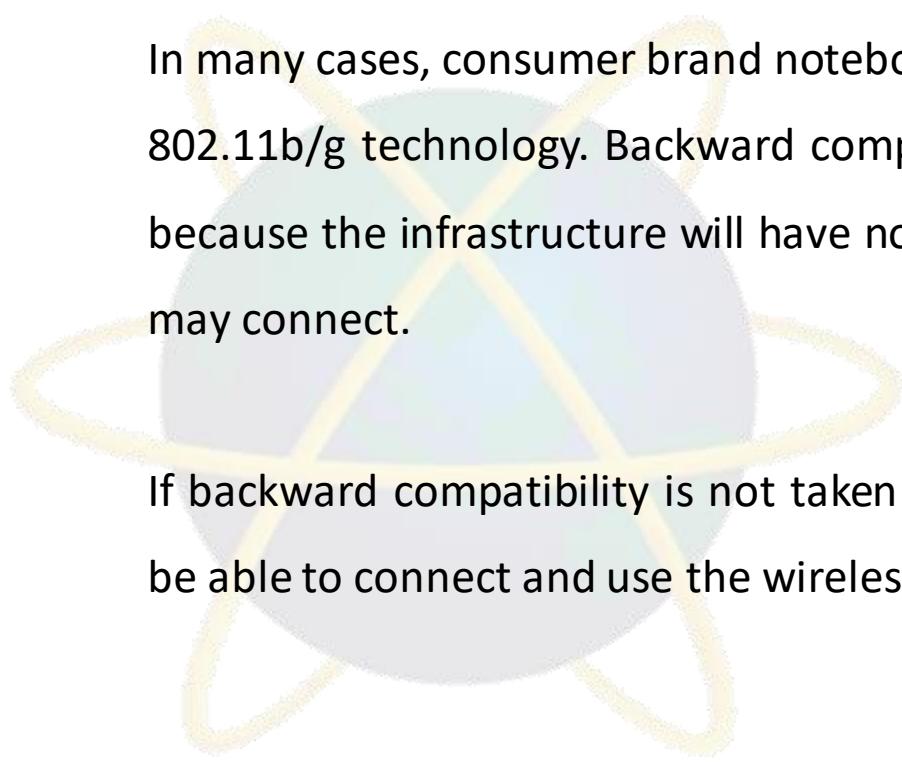
Gathering information is typically the first step of a wireless LAN design and implementation. As mentioned, the business model or type of business where the wireless LAN will be deployed is a major part of deciding the level of a wireless LAN site survey.

The type of business will determine the needs and use of a wireless network. Knowing the applications used—both hardware and software—is a critical part of a wireless LAN deployment as this will affect recommendations such as the number and locations of access points.

Expectations can make or break a wireless LAN deployment.

Public Access, Hotspots, Hospitality

Public access, hotspots, and hospitality may need to accept connections from a wide variety of client devices, including IEEE 802.11b/g and 802.11a devices.

In many cases, consumer brand notebook computers will be limited to 802.11b or 802.11b/g technology. Backward compatibility to these technologies is essential because the infrastructure will have no control over the type of client device that may connect.

If backward compatibility is not taken into consideration, some devices may not be able to connect and use the wireless network.

Interviewing Managers and Users

Understanding the intended use of a wireless LAN is a critical part of a successful deployment.

Who better to explain what the wireless network will be used for than those who will be using it? Those performing a site survey may not necessarily understand the functional aspects of a certain type of business, therefore it is critical to get input from all who will be using the wireless network.

Department managers, team leads, and business unit managers usually know the function of their specific areas of the organization the best. Therefore they will also know the needs and requirements of users of the wireless network and how a successful deployment will help increase job productivity.

Manufacturer Guidelines and Deployment Guides

The information just presented includes some types of questions that need to be addressed during the site survey process. Keep in mind that the actual questions and details are dependent upon the business model and the implementation of the wireless network.

Check with the specific manufacturer of the equipment to be used for site survey guidelines and deployment guides. These will provide additional information that is helpful in generating a list of questions and concerns that will need to be addressed.

Defining Physical and Data Security Requirements

Understanding the security requirements of both the physical environment and the user data is another design aspect of a wireless network. Because wireless LANs use RF to send and receive information such as computer data, wireless LANs are vulnerable to something known as *RF jamming*, which is caused by RF interference and can be either intentional or unintentional.

As the name implies, RF jamming disrupts RF communications. If an intruder wants to wreak havoc in a wireless network, they can use an RF signal jammer to cause interference on the same RF bands used by the wireless network. The only way to protect against this kind of activity is through physical security.

Defining Physical and Data Security Requirements

Physical security includes blocking RF signals from either entering or leaving a location. This could be done in a variety of ways—shielding materials can include metal, paint, or even wallpaper. If physical security is a concern where the wireless network will be installed, this needs to be taken into consideration during a site survey and design stages.
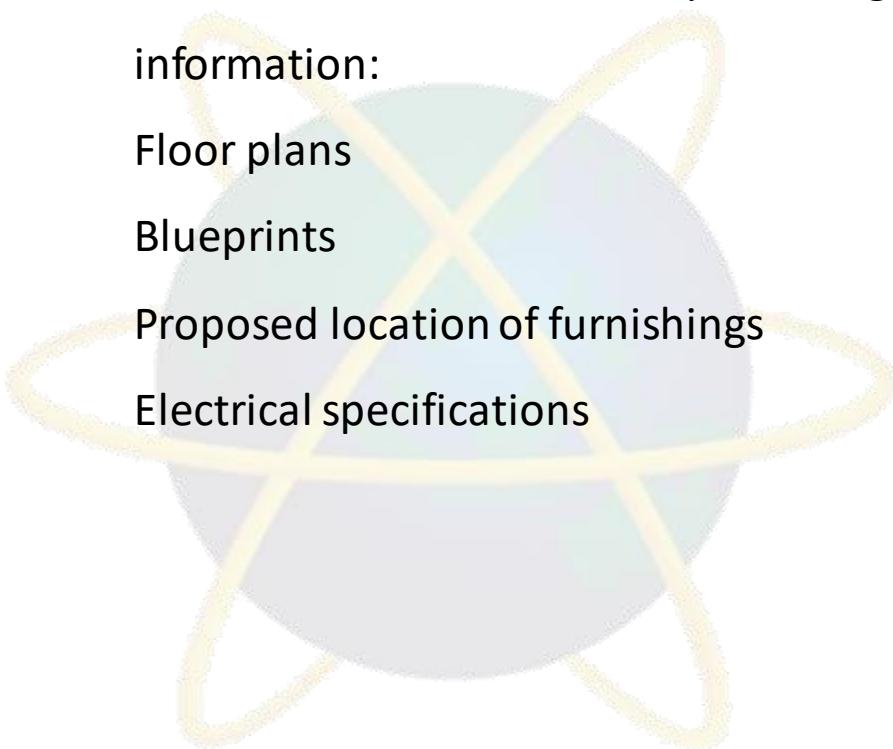
Data Security - Due to situations beyond their control, some organizations ensuring that information such as computer data is received by the intended recipients without tampering during transit.

Gathering Site-Specific Documentation

Documentation for the location where a wireless network will be installed will make a surveyor's job much easier and result in a better overall deployment. Drawings and other documentation pertaining to the following list can provide valuable information:

Floor plans

Blueprints

Proposed location of furnishings

Electrical specifications

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Documenting Existing Network Characteristics

Documentation is a major part of any business, and computer networks are no exception.

In order to have a successful deployment of a wireless network, it is critical to know the details of the *existing network infrastructure* as well as future implementations, upgrades, and modifications.

These existing infrastructures may include a wired or wireless network already in place and functioning that may be upgraded or in a new deployment.

Documenting Existing Network Characteristics

Existing wireless networks The questions that are asked regarding the existing wireless network will help determine the role it is going to play. If the existing network is going to remain in place, understanding its technical details and how to work it into the design of the new or upgraded deployment will help create a successful and productive wireless LAN deployment.

Existing wired networks In addition to knowing of any existing wireless networks, it is also important to know about the wired network infrastructure. Any existing documentation on the wired network infrastructure will help streamline the process for connecting in the wireless components of the network.

Identifying Infrastructure Connectivity and Power Requirements

Network infrastructure connectivity plays a big role in wireless networking. A wireless LAN site survey will require additional information about the network infrastructure and power requirements. In a sense, a wireless site survey also requires a wired or infrastructure survey.

Some of the information regarding the wired network includes:

Location of wiring closets

Wired infrastructure network devices in use

Connection speed between sites

Electrical power requirements

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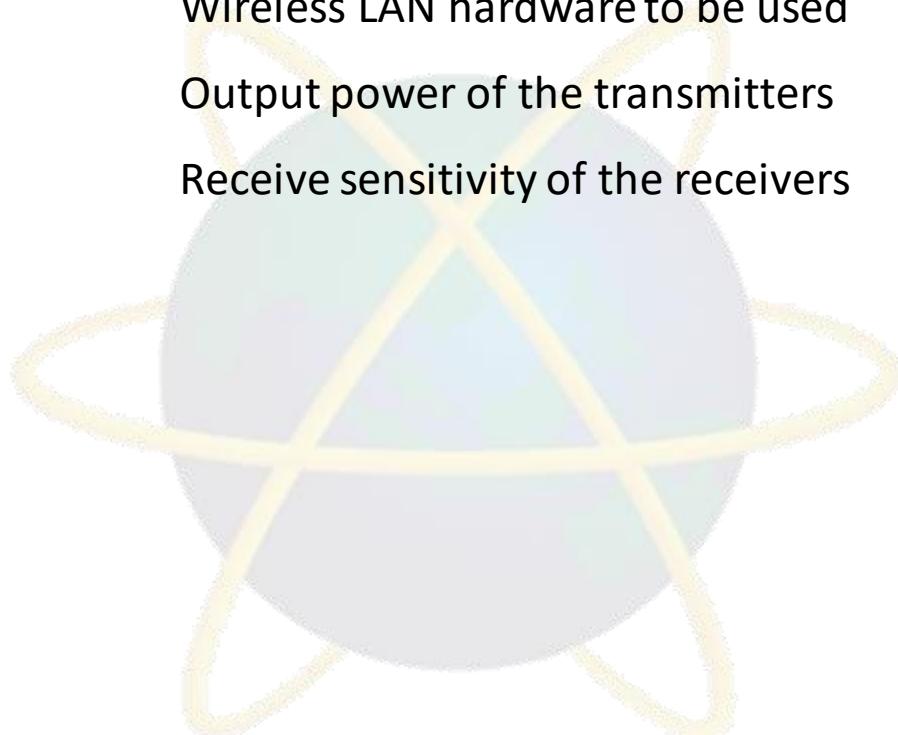
Understanding RF Coverage and Capacity Requirements

Radio frequency range of the network to be installed

Wireless LAN hardware to be used

Output power of the transmitters

Receive sensitivity of the receivers

Client Connectivity Requirements
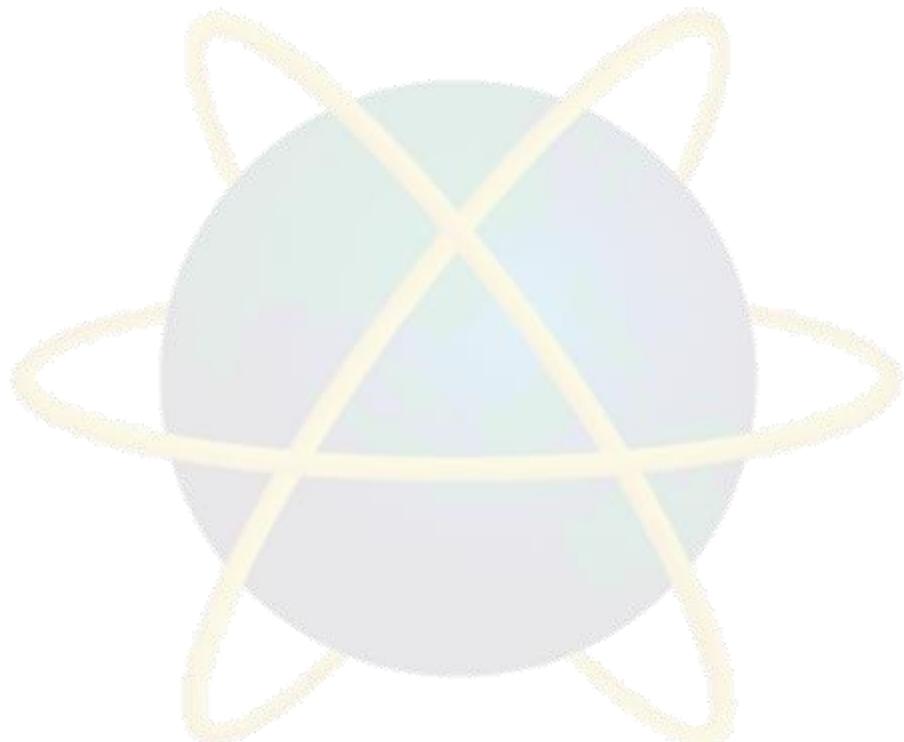
Client devices that will be connecting to the wireless LAN also need to be considered as part of a site survey. This includes knowing the radio type, antenna type, gain, orientation, portability, and mobility of the device. Understanding the type and function of client devices will have an impact on the design of the wireless network.

Common wireless client devices include:

Notebook computers

PDAs

Pocket computers

Barcode scanners

Quick Review Question

- Define Physical security.
- Define Data security.

Summary of Main Teaching Points

In this chapter, we discussed the business aspects of wireless LAN site surveys.

This chapter also discussed the importance of gathering information as well as the type of information required to successfully perform a wireless LAN site survey and design of a wireless network.
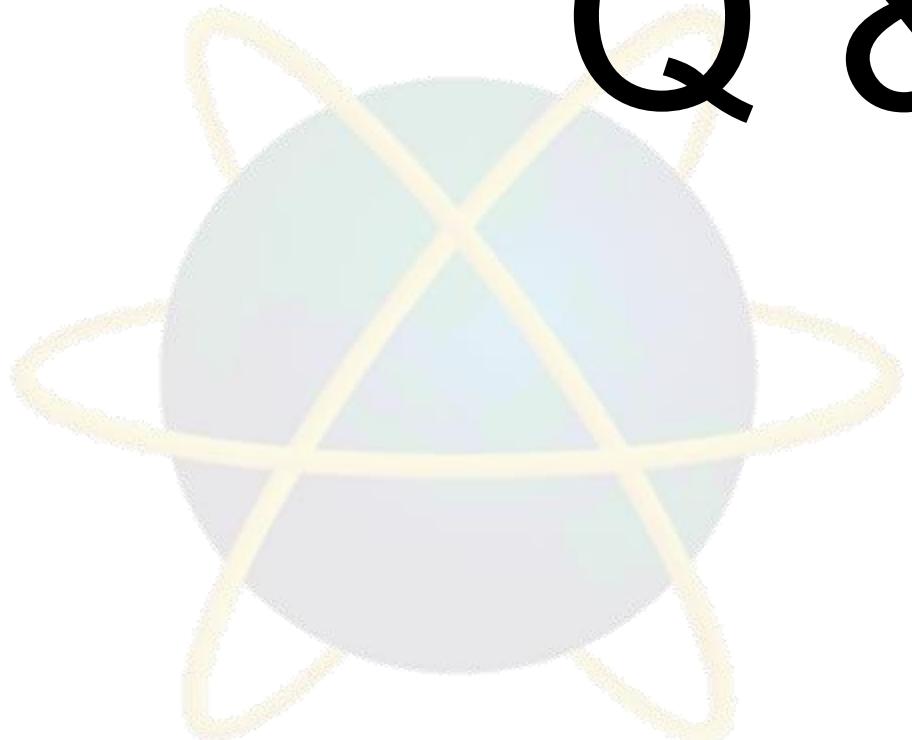
This chapter also discussed taking into consideration the physical and data security requirements of the wireless network.

This chapter discussed RF coverage requirements and the factors to be taken into consideration to ensure proper coverage throughout the location where the wireless network is installed. Finally, client connectivity requirements and other considerations were discussed.

Question and Answer Session

Q & A

What we will cover next

Troubleshooting and Maintaining Wireless Networks

Identifying Wireless LAN Problems

Software and Hardware Upgrades

Optimizing Wireless Networks

Infrastructure Hardware Selection and Placement

Identifying, Locating, and Removing Sources

of Interference

Client Load Balancing

Analyzing Infrastructure Capacity and Utilization