WILEY

SYBEX®

Certified Wireless Network Administrator (CWNA)
PW0-106

Chapter 11
WLAN Deployments and Vertical Markets

SYBEX®   WILEY

Chapter 11 Overview

- Deployment Considerations for Common Applications and Devices
- Corporate data access and end-user mobility
- Network extension to remote areas
- Bridging—building-to-building connectivity
- Wireless ISP (WISP)—last-mile data delivery
- Small office/home office (SOHO)
- Mobile office networking

SYBEX   WILEY

Chapter 11 Overview

- Branch offices
- Educational/classroom use
- Industrial—warehousing and manufacturing
- Retail
- Healthcare—hospitals and offices
- Municipal networks
- Hotspots—public network access

Certified Wireless Network Administrator: CWNA – PW0-106   3

SYBEX   WILEY

Chapter 11 Overview

- Stadium networks
- Transportation networks
- Law enforcement networks
- First-responder networks
- Fixed mobile convergence
- WLAN and health

Certified Wireless Network Administrator: CWNA – PW0-106   4

Deployment Considerations for Commonly Supported WLAN Application and Devices

- Data
  - Ensure that the network design is capable of handling the amount of data that will be transferred.
- Voice
  - Reduced power level will decrease the distance that a VoWiFi phone can operate from an access point, thus requiring smaller cell sizes, and more APs will be necessary to ensure adequate coverage.
- Video
  - Has a higher loss tolerance than voice
  - Research whether the video transmissions are using multicast transmissions or quality of service (QoS)

Certified Wireless Network Administrator: CWNA – PW0-106   5

Real-Time Location Services

- RTLSs can be used to track any 802.11 radio, or a specialized 802.11 RFID tag can be affixed to a non-802.11 asset so that it can be managed and tracked.

Certified Wireless Network Administrator: CWNA – PW0-106   6

Mobile Devices

Multiple concerns arise with integrating these devices into the network:

- Making sure that the devices are capable of connecting to the network using the proper authentication
- Ensuring the use of encryption protocols along with the ability for these devices to be able to smoothly roam throughout the network without losing connectivity
- Providing network access, not only based upon the identity of the user of the device but also based upon the type of device or other device or connection characteristics

---

SYBEX ⊛**WILEY**

Corporate Data Access and End-User Mobility

- Wireless networking provides a simple method to add networking in some areas
  - 802.11n increases throughput
  - Wired installations can be very expensive
- Wireless networks can provide continuous and everywhere access
- Network extensions to remote areas are also important

Certified Wireless Network Administrator: CWNA – PW0-106   8

SYBEX   ⊛WILEY

Additional Common Uses

- Bridging
  - **Requires that the two buildings have a clear RF line of sight between them**
  - Three or more buildings can be networked together by using a point-to-multipoint (PTMP) solution
- Wireless ISP
  - Often use wireless technology other than 802.11, enabling them to provide wireless coverage to much greater areas
  - 802.11 technology generally is not intended to scale to the size needed for citywide WISP deployments

---

SYBEX   ⊛WILEY

Additional Common Uses

- Small Office/Home Office (SOHO)
  - Not as flexible or feature rich as comparable corporate products

SYBEX   **WILEY**

Additional Common Uses

- Mobile office networking
  - Wireless bridge can be used to distribute wireless networking to the mobile office
- Branch Offices
  - Distributed solution using enterprise-grade WLAN routers at each branch office is a common choice
- Educational and classroom use
  - Require more access points for coverage because of the wall materials between classrooms.
  - Network access control (NAC) has become an integral part of many school networks

SYBEX   **WILEY**

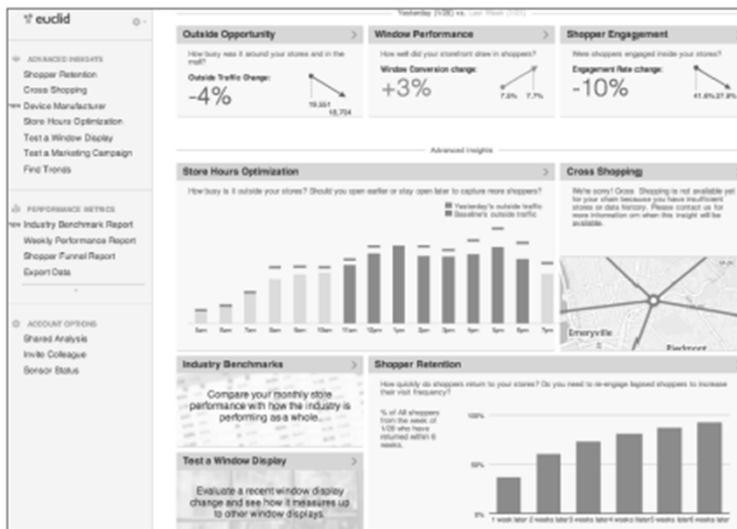## Vertical Markets

- Industrial(Warehousing, Manufacturing)
  - Often deploy wireless handheld devices, such as bar code scanners, which are used for inventory control.
- Retail
  - Four key uses
    - provides support relating to the operations of the store and the retail transactions
    - tracking analytics of the retail customer
    - location-based mapping and tracking services
    - supplemental Internet access

Retail analytics

Vertical Markets

- ## Healthcare

  - Some companies have even integrated 802.11 wireless adapters directly into the equipment that is used to monitor and track the patient's vital signs

---

Vertical Markets

- Municipal Networks
  - Communities often underestimated the scale and cost of these projects, and many taxpayers did not want their taxes spent on what they considered to be an unnecessary service
  - Increased interest and success in deploying 802.11 in many downtown and high-density areas

---

Hotspots

Vertical Markets

- Stadium Networks
  - Provide event operations with services such as reliable high-speed Internet access in the press box, ticketing and point-of-sale transaction processing, and video surveillance

- Transportation networks
  - Provide hotspot services for end users so that they can gain access to the Internet.
  - Necessary for the transportation network to use some type of mobile uplink services

---

Vertical Markets

- Law enforcement networks
  - Wi-Fi in the parking lots outside the police station and other municipal buildings as a supplement to their wireless metropolitan networks
  - High-speed communications between networking equipment in the police cars and the police department's internal network
  - Computer in the car automatically uploads the video fi les from the data storage in the car to the central video library.

Vertical Markets

- First-responder networks
  - Rescue vehicles are being equipped with either permanently mounted Wi-Fi access points or easily deployed, self-contained portable access points that can quickly and easily blanket a rescue scene with a Wi-Fi bridge to the emergency personnel's data network.

Certified Wireless Network Administrator: CWNA – PW0-106　　19

Fixed Mobile Convergence

Goal is to provide a single device, with a single phone number that is capable of switching between networks and always using the lowest-cost network

Certified Wireless Network Administrator: CWNA – PW0-106　　20
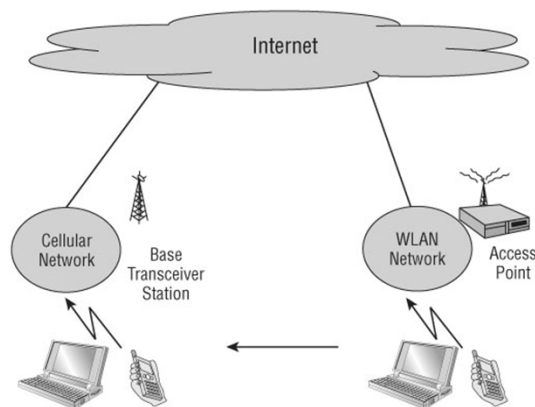
WLAN and Health

- World Health Organization and government agencies set standards that establish exposure limits to radio waves
- No convincing scientific evidence that weak radio-frequency signals, such as those found in 802.11 communications, cause adverse health effects.

SYBEX ⊕WILEY

Chapter 11 Summary

- Deployment Considerations for Common Applications and Devices
- Corporate data access and end-user mobility
- Network extension to remote areas
- Bridging—building-to-building connectivity
- Wireless ISP (WISP)—last-mile data delivery
- Small office/home office (SOHO)
- Mobile office networking

Chapter 11 Summary

- Branch offices
- Educational/classroom use
- Industrial—warehousing and manufacturing
- Retail
- Healthcare—hospitals and offices
- Municipal networks
- Hotspots—public network access

Chapter 11 Summary

- Stadium networks
- Transportation networks
- Law enforcement networks
- First-responder networks
- Fixed mobile convergence
- WLAN and health