**Learning Tips for Chapter 2**

Enterprise networks support business applications. This chapter identifies some of the major categories of applications supported on business networks with special emphasis on enterprise systems and client-server applications. It also describes how various types of cloud services are used to support business applications.

Section 2.1 and its subsections identify and briefly describe some of the major categories of applications supported on enterprise networks. An important point made in this section is that most applications used by businesses are products from software vendors, not applications developed in-house.

Sections 2.2 and its subsections briefly describe some of the major types of enterprise systems applications that are common in business networks. Important points include that these typically include links to suppliers and/or customers and to each other (most businesses use and integrate two or more ESs.

Section 2.3 and its subsections deserve special attention, especially its discussion of multi-tier client-server software architectures and how they can be distributed across different locations in client-server networks. Do not miss the points that servers have the dominant role in client-server interactions and that most mobile apps are thin client apps. Also note that middleware is frequently needed to bridge differences in client device and server operating systems and that most cloud-based apps are collections of services.

It is important to consider section 2.4’s discussion of cloud computing from the perspective of application support and deployment. Developing a clear understanding of server and network virtualization and the differences between private, public, hybrid, and virtual private clouds is important. You also need a clear understanding of the differences between SaaS, PaaS, and IaaS.

Section’s 2.5.1’s discussion of enterprise network zones is important; so is the deployment and use of payment gateways and managers in ecommerce infrastructure – this is discussed in section 2.5.3.

In section 2.6.2, it is important to note that malware is being described as a threat to client devices while DoS is being described as a threat to servers. It is also important to note that EMM and its components primarily apply to mobile apps and devices.

Do not ignore the Key Concepts in Chapter 2 Presentation.

You are also encouraged to leverage the supplement videos and readings for this chapter.

Use the Chapter 2 Problems and Exercises tips to assist with any problems and exercises that you may be assigned.

The appendices for Chapter 2 provide additional information on numerous topics.

**Especially Important Sections**

Section 2.2 and each of its subsections are somewhat important because enterprise systems (ESs) are very common in enterprise networks. It is valuable to consider their overall benefits, their links to business partners, and why their performance and security receive special attention from network administrators.

Section 2-3 and its subsections are especially important because it gets to the heart of how clients and servers interact to process different types of applications. This is arguably the most important section in the chapter.

Section 2.4 provides important perspectives on cloud computing, cloud types, and application deployments.

Section 2.5.3 illustrates and describes the deployment and roles of payment gateways and payment managers in e-commerce infrastructure.

Section 2.6.1 is very important because it provides a summary overview of application security controls. Tables 2-9 and 2-10 and Figure 2-25 warrant your attention.

**Especially Important Figures and Tables**

*Note:* It is important to read/study the discussion related to each figure and table that is identified.

Figure 2-1

Figure 2-6

Figure 2-7

Figure 2-8

Figure 12-10

Figure 2-11

Table 2-3

Figure 2-12

Table 2-4

Table 1-5

Figures 2-13, 2-14, and 2-15

Table 2-5

Figure 2-16

Figure 2-17

Figure 2-18

Figures 2-19 and 2-20

Table 2-6

Table 2-7

Figures 2-21 and 2-22

Figure 2-24

Tables 2-9 and 2-10

Figure 2-25

Table 2-11

**Especially Important Key Terms**

Application

Client-server computing

Client software

Electronic data interchange (EDI)

Hybrid cloud

Infrastructure-as-a-service (IaaS)

Interorganizational system (IOS)

Middleware

Platform-as-a-service (PaaS)

Private cloud

Public cloud

Server virtualization

Software-as-a-service (SaaS)

Virtual public cloud (VPC)

**Especially Important Review Questions**

Questions 1-2, 7-9, 11-15, 17-26, 30