

## Chapter 38

# SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

## INTRODUCTION

In order to understand better how the security principles that were specifically covered in Chapter 2 and throughout the rest of this book can be applied, you need to understand the standard networking architecture and how the specific Internet Architecture fits this model. Then, you can see how the security principles that have just been discussed apply to the Internet model. This final chapter focuses on these security principles and presents a summary, conclusion and recommendation for each [1].

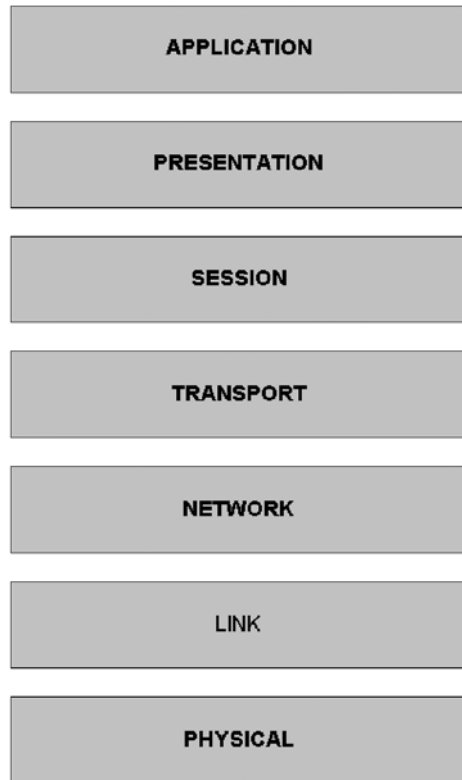
## SUMMARY

The International Standards Organization (ISO), published an architecture in the early 1980s, whose primary philosophy is that different telecommunications functions should be handled by different standard and open “layers” of the architecture. This so called Open Systems Interconnect (OSI) model is constructed as follows [1].

### ISO 7 Layer Model

The very lowest layer is the physical layer which is responsible for the physical transmission of the data from the computer to the network. Here, there are the electronic circuits and mechanical connectors which define how transmissions are to occur over coaxial ethernet, modems, FDDI or any other medium for transmitting data [1].

Next is the Data-link layer, which is responsible for the integrity of the bit stream between any two points. Here, there are standards for redundancy checks, parity, retransmission protocols, etc. to ensure that the same sequence of bits sent from point A is received at point B [1].



*Figure 38-1.* OSI model.

The Network layer extends the concepts of the Link layer into multiple networks, which may or may not be compatible. Internetworking also implies that this layer must be aware of different routes available to connect the sender with the recipient [1].

The Transport Layer ensures that different transmissions, which may be part of a sequence and which may have traversed the network via different paths, are appropriately resequenced at the receiver's site. The Session Layer manages the connecting and disconnecting of interactions between two computers and how the data is to be exchanged (duplex, simplex, etc.) [1].

Presentation determines what code sets will be used (ASCII, EBCDIC, international character sets, etc.). Finally, you come to the Applications Layer in which specific applications like FTP, Telnet, e-mail, Archie, and others reside [1].

The architecture of the OSI model is such that each layer uses services “below” it and provides services to those layers “above” it, giving the appearance of a stack. In fact, the model is known as a protocol stack and other architectures, such as TCP/IP, will also follow the stack model (see Fig. 38-1) [1].