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Preface

Information is increasingly recognised as a commodity whose value rises in proportion to its portability. From financial institutions operating in markets across the world to car makers running automated production lines, many businesses depend upon the immediate and reliable transfer of information from one computer system to another.

In a market-place bedevilled by the incompatibility of so many of the products on sale, this apparently straightforward requirement has proved extremely difficult to satisfy. Although individual manufacturers have provided proprietary solutions, these have not proved adequate to achieve the ultimate goal — full compatibility in communication between computer systems.

In common with similar moves in other areas of information technology, the International Organization for Standardization (ISO) has therefore overseen the production of a model for *open systems interconnection* (OSI) — that is, the facility for one OSI-compliant system to be able to interact with any other OSI-compliant system. The intention is that the OSI model and its associated standards will be universally accepted as the framework for the future development of inter-system communications.

From the evidence of the growing number of OSI-compliant products being released, OSI appears to have been a decisive and necessary initiative. There seems every prospect that the pattern of data communications in the future will be shaped by OSI: not only does OSI meet the current need for regulation in a previously unregulated area, but it also provides sufficient flexibility to incorporate the inevitable advances which will be made in the swiftly evolving field of communications technology.

This book aims to give a general introduction to OSI for engineers, students and others who need to become familiar with its concepts and terminology. The two opening chapters give an histori-

cal account of the development of data communications and describe the philosophy of layered architectures. In Chapter 3, the principles of the seven layer OSI model are explained and OSI terminology is introduced.

Each of the seven chapters which follow deals with a layer of the OSI model. The reader with a general interest in OSI is directed to the introduction and the 'requirements' section of each chapter, which give an overview of the layer in question and its functions in relation both to the model and to the data communications environment. The 'specification' section describes in detail how the layer operates to fulfil its requirements. Each chapter concludes with a discussion of the current communications technologies, if any, which comply with the OSI standards for the layer.

The final chapter reviews the present state of OSI development. It makes particular reference to the X.400 message handling system, currently the most widely available OSI-compliant implementation.

Chapter references include the relevant OSI standards and drafts for development, as published by the British Standards Institution; the equivalent ISO references are also given.

The emphasis in the current OSI standards is on connection-oriented communication between computer systems. Connectionless services are on the whole described in addenda to those standards which define the connection-oriented services, although the intention is that these addenda should be incorporated in the main body of standards as soon as possible. This book reflects the present state of OSI development and treats connection-oriented layer services as being of primary importance.

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