Book Review:

Redes de Computadores – Un enfoque descendente basado en Internet Segunda Edición

Computer Networks – A top-down approach featuring Internet Second Edition

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The book is intended to be used in an introductory and intermediate level course on computer networks, both whitin Computer Science and Electric Engineering scopes. One of its characteristics is that the entire research software is presented in Java, but with such simplicity that a student with basic knowledge of C or C++, would not have any difficulty in the analysis of the presented examples.

One of the main differences of this book with respect to those dealing with similar topics is its top-down approach. That is, the description of computer networks begins with the model application layer, descending towards the conclusion at the physical layer. This is particularly interesting because the students begins with the identification of objects that are tangible in their daily lives, such as e-mail or the WEB, and from there they move downwards to a more detailed view of the network performance supporting these applications.

The book begins with an introductory chapter on computer networks and their relation to Internet. In this part, the student receives a basic idea of the layered structure and network protocols.

Chapter 2 presents the application layer in more detail. The student receives details on the services provided by the network and which make up an important environment in current life. An approach of the Client-Server paradigm is provided as well as a basic idea of Sockets handling in Java.

Based on the fact that the publication has an Internet-focussed approach, and thus, in its base protocol TCP/IP, the following chapter addresses the Transport Layer. For this reason, we assume that intermediate layers of the OSI Model, that is, Application and Presentation Layers, are only considered implicitly and outwardly in the Application Layer chapter. Here we find an excellent treatment of the Transport Level. The contents presented, especially the description of the flow control and congestion control in TCP, provide a really clear explanation about why TCP is a “heavy” protocol.

Next, we find a chapter dedicated to the network layer, in which routing principles are presented together with a detailed description of certain routing algorithms.

Chapter 5 addresses the Link Layer and LAN networks. The services of this layer are described, and special attention is paid to error detection and correction techniques. On the other hand, Ethernet is described in depth together with three approximations for LAN segment connection: hubs, bridges, and switches.

As regards services provided by the Link Layer, the elements giving support in the Physical Layers are described, when necessary, defining their characteristics.

Once the protocol stack has been covered, we find a chapter dealing with Multimedia Networks, addressing details about the multiple services they provide. For example: Audio and Video in real time is described in detail and, at the same time, the problems arising due to the existence of protocols providing it support –described in previous chapters- are analyzed.

Finally, the book addresses the topic: Security in Networks. A series of ways to attack and the potential measures to lessen them are described.

The last chapter treats in a simplified and introductory fashion the network management, which is not a minor topic due to the popularity networks are gaining in today’s world and, thus, their complexity.

Authors have provided a WEB page with didactic examples specifically designed for the student new to the discipline: http://www.awl.com/kurose-ross.

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